

Amateur Radio



November 1998

Volume 66 No 11

Journal of the Wireless Institute of Australia



Full of the latest amateur radio news, information and technical articles, including...

- **Review of the Magellan GPS-2000XL Mk3**
- **A J-Pole Antenna for Two Metres, by Drew VK3XU**
- **Harry Angel VK4HA Silent Key**

Plus *lots of other articles, news and special interest columns*

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Cover Dot VK4DDB and her son Peter VK2HCU. Dot is Editor of the ALARA Newsletter and, with Peter's help has put an ALARA home page (seen on the monitor screen) on the Internet. When he finishes the HSC, Peter intends to get his full call.

CONTRIBUTIONS TO AMATEUR RADIO

Amateur Radio is a forum for WIA members' amateur radio technical experiments, experiences, opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for possible publication. Articles on computer disk or via e-mail are especially welcome. The WIA cannot assume responsibility for loss or damage to any material. A pamphlet, "How to Write for Amateur Radio", is available from *W. Roper and Associates Pty Ltd* on receipt of a stamped, self addressed envelope.

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The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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The world's first and oldest National Radio Society Founded 1910

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■ Viewpoint

Editor's Comment

Do We Have a Future?

This is mainly aimed at amateurs who know about the Wireless Institute of Australia in a "second-hand" way but don't actually belong to it.

The people I hope will see it may be fairly young, and probably have some interest in a local radio club if not actually club members. But they are not now members of the WIA, although once they may have been. We now urgently need them to join or rejoin, or there may no longer BE a WIA to belong to!

The reason is simple; the outgo exceeds the income!

Whereas just over 10 years ago we had over 8000 members, now we have barely 4000. Subscription income is therefore virtually only half of its former amount, but costs remain much the same, almost independent of the number of members.

The question is now being asked whether we can afford any longer to produce this magazine, 66 years after it began!

The WIA is not the only organisation with magazine and membership problems. The *Australian Chess Magazine* ceased production at the end of 1997. It had lasted for 75 years, sometimes with the support of all States; but finally only NSW remained a contributor. Chess has something like two million players in Australia, but does not need Federal representation to Government in the way that amateur radio does.

The Chess Federation costs per member should thus be much less than ours. Yet they could no longer support a national magazine. Do we want to go the same way?

Amateur Radio is the best way for members and Council to keep each other informed. State or Club newsletters cannot be as effective, particularly outside their own borders.

The suggestion has been made more than once that a possible solution is for *Amateur Radio* to be incorporated into a commercial magazine. But commercial magazines also have their problems in the market place, and such a move might be out of the well-known frying pan into the fatal fire!

So, we come back to the present situation. Do we need our magazine *Amateur Radio*? If so, we can only continue by increasing the number of members of the WIA. A sufficient increase in membership would even permit reduction of subscriptions.

A 10% increase in numbers at present fees would probably overcome the problem. But if our membership drops further we may go the same way as the *Australian Chess Magazine*.

Only YOU can avoid this fate, by enlisting new members or convincing "drop-outs" to rejoin.

Let's do it!

Bill Rice VK3ABP
Editor

PS. I thank Peter Parker VK3YE (ex VK1PK) for referring me to the final issue of the *Australian Chess Magazine*.

ar

■ WIA Comment

From the President

Following on from the theme in my report to you in last month's *Amateur Radio* magazine, I am pleased to say that I am finding in my conversations with fellow radio amateurs in Australia an awareness of the challenges facing our hobby and a strong desire to preserve our privileges against the commercial forces.

I am often asked, "Why do people belong to the WIA?"

The answer depends on the view point of the member. For most it is because they feel a genuine desire to belong and to be proud of their support of the national body. For some, perhaps the more mercenary ones, it is because it provides a monthly magazine and access to a QSL bureau. For a few, the answer is because

without the WIA our precious privileges will not survive the onslaught from outside interests.

All of these answers are correct. But it is in the national and overseas representative areas that the Federal WIA body is most essential. Without a voice to the Australian government agencies and the International Organisations, the radio amateur will be forgotten in the grab for spectrum. As you can imagine, this is a most expensive service to provide for members with the need for expert technical negotiators to attend meetings both at home and overseas.

In the past week a draft business plan prepared within the WIA Federal Executive has been released to the Federal Council and to the Presidents of the seven

State Divisions for review by them. It is intended as a necessary first step to strengthening the financial integrity of the Federal body and so ensuring the future of those members' services that are provided by WIA Federal.

By itself, this business plan is not a magic cure to financial ills but will position the Executive and Council to enable the best decisions to be made.

The WIA has the ability and access to the skills needed to meet the challenges. However, it can only succeed if it has the financial resources to fund the various tasks involved. Our principal source of funding is from members' subscriptions and it is clear that we need an increase in the current membership levels if we are to be able to maintain and subsequently expand the membership services desired by our members. Together we must succeed in encouraging more of those who engage in amateur radio to join us in being members of the WIA.

Let's all make this a primary objective!

Peter Naish VK2BPN
WIA Federal President

at

■ News

WIA News

Prepared, researched and compiled by
David Thompson VK2NH
Federal Public Relations Co-ordinator

Amateur Radio Operators and the Olympic Games

The following information provides advice to licensed Amateur radio operators on the temporary operation of the Olympic Radio Network (ORN).

The Sydney 2000 Olympic and Paralympic Games (the Games) will be a hallmark event. The task before SOCOG is a challenging and confronting one, particularly because the expectations of the nation and the world are naturally very high. It is an overriding national intention to create an efficient and effective Games - 'the best ever' - and the willing support of the Amateur radio operators community is critical in achieving that goal.

The Australian Communications Authority (ACA) recently convened two meetings with the key stakeholders to discuss details concerning the ORN project.

These meetings were attended by Peter Naish, the Federal President of the Wireless Institute of Australia (WIA); Michael Corbin, President of the VK2 Division; John Innes, who provided technical support on the WIA's behalf; and representatives from Telstra, the Sydney Organising Committee for the Olympic Games (SOCOG), the Department of Defence, and the Australian Communications Authority (ACA).

The spirit of co-operation that has characterised the work on the ORN to

date, places the project in great stead, and is a credit to all participants concerned.

The principal focus of the meetings has been to develop radio frequency arrangements that will enable a high quality ORN with minimum negative impact.

An important focus has been to ensure that any inconvenience caused to Amateurs due to the operation of the ORN within the range 421 MHz to 432 MHz is minimised. Both the Department of Defence and the ACA have confirmed that the ORN will cease operation on 31 December 2000.

The ORN will be a distinct trunked radio network especially created to support the staging of the Games. Telstra has been contracted to implement the ORN and is now planning the installation and support of the network on behalf of SOCOG.

SOCOG has selected a trunked land mobile system using Motorola's 'Astro' as the basis of the network. Astro is a four level FM QPSK digital trunked land mobile technology closely related to Motorola's Smartzone trunking system. Smartzone is a proven technology already

providing the basis of the NSW Government Radio Network (GRN).

In order to adequately service the administrative, command, control and other functions central to the staging of the Games, the ORN will require a capacity of at least 200 channels.

Provisional planning and modelling is still being performed to determine exact channel limits; however, the following arrangements are likely to be close to the final operating arrangements for the ORN:

- It will be in operation for the period 31 March 1999 to 31 December 2000 to accommodate the period of the Games and the extensive SOCOG lead up test event schedule.

- Location of the ORN is expected to be confined to the Sydney basin.

- The spectrum to be used is bounded within the following frequency limits derived from ± 6.25 kHz from the lower and upper channels planned:

- * Base receive 421.00625 MHz to 421.98125 MHz, paired with base transmit 428.06875 MHz to 429.04375 MHz, with a transmit/receive split of 7.0625 MHz.

- * Base receive 424.00625 MHz to 426.81875 MHz, paired with base transmit 429.08125 MHz to 431.89375 MHz, with a transmit/receive split of 5.075 MHz.

- Three blocks of frequencies will be used within the ORN. On any particular radio site, only channels from within the same block will be in use. This arrangement ensures that intermodulation products up to the 7th order are avoided in all blocks. However, in one of the blocks, up to 15th order intermodulation products will be avoided.

- Channel width will be 12.5 kHz.

While Telstra has yet to confirm formally that the ORN will be limited to use within the Sydney basin, they are hopeful that SOCOG's communication needs at interstate venues can be serviced from within the existing communications infrastructure at these locations. Telstra will provide further advice on this matter in the near future.

The Motorola Astro equipment to be used for the ORN is fully programmable over the range 403 MHz to 433 MHz, and the handheld and base transceivers can all transmit and receive on any

channel in that range. The transmit/receive sense of the ORN has also been chosen to further minimise the potential for interference.

Motorola's Astro equipment is available in three frequency ranges, 403 MHz to 433 MHz; 439 MHz to 470 MHz; and 450 MHz to 489 MHz. Of these three ranges, the range 403 MHz to 433 MHz is considered most suitable for operation of the ORN because the equipment can be retuned for GRN use after the Games are over. Within this range the segments below 420 MHz are already substantially occupied in Sydney by the GRN and other services. Therefore, the only viable spectrum that will support the 200 channels or more required for the ORN is the upper range from 420 MHz to 433 MHz.

In order to accommodate the Games in the range 420 MHz to 430 MHz, some changes need to be made to the Australian Radiofrequency Spectrum Plan (ARSP).

In order to accommodate the Games in the range 420 MHz to 430 MHz, some changes need to be made to the Australian Radiofrequency Spectrum Plan (ARSP). Presently, land mobile services are allocated spectrum in the segment 420 MHz to 430 MHz on a Secondary basis, but no allocation currently exists for these services in the segment 430 MHz to 440 MHz in the ARSP.

It is proposed that a suitable allocation will be made in the range from 421 MHz to 432 MHz to enable the operation of Land Mobile and Fixed services on a Primary basis for the preparation and staging of the Games.

A new draft of the ARSP, which will include this new allocation, will be available for public comment in October 1998.

Under the ARSP, frequencies in the range 420 MHz to 433 MHz are allocated to Radiolocation services on a Primary

basis. Systems employing this allocation are predominantly operated by the Department of Defence. The ARSP also allocates this spectrum to the Amateur service on a Secondary basis. Services having a Secondary status may not cause interference to, or claim protection from existing or future services having a Primary status.

The Department of Defence has provided conditional permission to SOCOG to use these frequencies for a limited time in support of the Games. As the major body representing amateurs in Australia, the WIA has been supplied with a copy of this correspondence. Importantly, this permission makes clear that SOCOG's use of the spectrum is conditional on all ORN services being cleared from this frequency range after the Games.

All amateur operations within the range 421 MHz to 432 MHz will be affected. In order to protect the ORN from interference, it will be necessary to restrict the operation of Amateur stations in the ORN frequency range, for a certain geographical area around Sydney. It is expected that the ACA will achieve this by modifying the Amateur Licence Conditions Determination (LCD). The exact geographical and frequency range limitations imposed by the Amateur LCD will be determined after interference modelling has been completed.

The necessity for further restrictions outside the range 420 MHz to 433 MHz and beyond the Sydney basin is yet to be determined. Additional work is still required to explore the potential for mutual interference between the ORN and Amateur narrow band communications within the range 431.95 MHz to 433 MHz.

Consideration was given to allowing some amateur operations within the period 31 March 1999 to 31 December 2000. However, the SOCOG schedule, requiring the staging of over 40 test events in the lead up to the Games, provides no such window of opportunity.

Further meetings will be convened from late October 1998 to promote the establishment of the ORN. All stakeholders, including the wider Amateur community, will be kept advised of the work of this committee and general developments in regard to the project.

ACA Releases Draft New Australian Radiofrequency Spectrum Plan

The Australian Communications Authority (ACA) has released a draft new Australian Radiofrequency Spectrum Plan and invites public comment on it, in accordance with the requirements of section 33 of the *Radiocommunications Act 1992*. The draft Plan is intended to replace the January 1997 Plan.

The Plan divides the radio frequency spectrum into frequency bands, and informs radiocommunication users about the services allocated at the highest level to each frequency band. It is derived from spectrum arrangements developed internationally for the Asia-Pacific region of the world, and reflects Australia's treaty obligations as a member of the International Telecommunication Union (ITU).

The Plan is being updated primarily to incorporate changes made to international frequency allocations at the 1997 ITU World Radiocommunication Conference, and which come into effect on 1 January 1999. The changes will provide additional support in Australia for new and emerging developments such as high capacity orbiting satellite systems and lighter-than-air high altitude communications platforms delivering telecommunication services. They also include further world-wide allocations for the space science services and the ability to support full implementation of GMDSS (the evolving global maritime distress and safety system), along with a range of other enhancements.

Detailed information about the nature of the changes can be found on the ACA's Website <http://www.aca.gov.au/>.

Copies of the draft Plan can be obtained from the ACA by contacting Margaret Nestor, telephone 02 6256 5277 or e-mail mnestor@aca.gov.au. Closing date for comment is 12 November 1998.

BHP Science Awards

BHP and CSIRO have thrown their support behind the use of Amateur Radio in the classroom. On 6 October, the Principal of Gormandale and District PS, Rob Higgins VK3JKA was awarded the 1998 BHP Science Award for

Primary Science Teachers for his work in Science Education and in particular his work in the field of Space Education including satellite contacts and his school's chat with Andy Thomas earlier this year.

This award is one of three awarded annually to an Australian Teacher of Science. The recipient of the award receives a plaque to commemorate the event and a substantial cash grant.

Plans at this stage include the purchase of equipment to be used in furthering the school's work in satellite communication (a brand new Yaesu FT-847 is on the way) and a study trip by Rob to the US next year to visit various NASA sites and schools involved in the SAREX program or using amateur radio in the classroom.

The school would like to thank AMSAT and the Eastern Zone of the Wireless Institute of Australia for their support, and BHP and the CSIRO for recognising the potential our hobby has for future generations and giving their encouragement.

Gormandale and District PS is located in Rosedale Road, Gormandale, VIC and the postcode is 3873. If you would like

to contact Rob you may do so on 03 5197 7444, fax 03 5197 7442, or on e-mail Higgins.Rob.J@edumail.vic.gov.au.

ACA Concerned with Illegal Connection of Data Equipment

The ACA says it is concerned by reports that service providers and other users might be breaching telecommunications technical regulations by connecting non-standard data equipment to carrier leased lines.

The ACA's Executive Manager Telecommunications Standards, Grant Symons, has indicated that the concerns lie with a range of equipment generically known as digital subscriber line or xDSL equipment. He said, "While nothing has been confirmed yet, breaches could attract penalties under the Telecommunications Act."

"Recognising the potential for interference to other services present on a cable, the critical question becomes whether the integrity of a network is undermined by products in the Market."

The ACA plans to remedy the regulatory breach situation, where equipment of

TIME TO DEFEND YOUR BANDS AND HARD-WON PRIVILEGES

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AN APOLOGY

We would like to extend our sincere apologies for any confusion that may have been caused when last month's column was published with incorrect dates for both the Healesville and Perth Hamfests. We hope you still made it to the events despite the mix-up.

CHECK OUT OUR WEBSITE

To find out more about exciting new product releases like the IC-PCR100, plus lots of other interesting Icom information, be sure to visit our website on www.icom.net.au

EVENTS NOT TO BE MISSED

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indeterminate compliance status is currently in service, but not causing any obvious integrity problems, by the issue of time-limited connection permits to users. In the meantime the ACA has called for a co-operative approach from the industry to find the best solution.

Ham Fined in the US for Radio Interference

The FCC has levied a \$2500 fine on a Florida ham for malicious interference on a business radio service frequency. Jeffrey G Guss KF4MWT of Palm Bay, Florida, was cited by the Commission following an investigation of several months that also involved malicious interference to an amateur repeater.

In February 1997, the FCC's Tampa office responded to complaints of unauthorised transmissions containing foul language and threats on 154.6 MHz. Agents tracked the transmissions to Guss's residence, but he denied having equipment that could transmit on 154.6 MHz. The agents later found gear in Guss's possession which would transmit on the frequency of the crime.

After denying the transmissions and failing to answer an Official Notice of Violation, a Notice of Apparent Liability was issued to Guss for unlicensed operation on 154.6 MHz, for failing to permit inspection of radio equipment in his van, and for failing to respond to the FCC's correspondence.

On 7 October, the FCC ordered Guss to pay the \$2500 fine within 30 days. However, there is no indication in the order that Guss's amateur ticket or the Land Mobile Radio Service licence he holds will be jeopardised.

[Via ARRL Newsletter]

Hams Help Nab Police Radio Jammer

A Connecticut Amateur Radio tracking team called Capitol Region Malicious Interference Tracking (CRMIT - pronounced "Kermit") helped lead authorities to a man they believe was interfering with local public safety communications.

A man has been charged with criminal mischief, interfering with police and breach of peace. He also could face similar charges in other communities as

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well as federal charges. The man, who is not a radio amateur, allegedly used a modified ham radio hand-held to transmit on police and fire frequencies used by as many as three dozen Connecticut public safety agencies. At one point, he is said to have jammed the Manchester, Connecticut, police system for 15 minutes.

The CRMIT team used transmitter fingerprinting equipment, and the offender helped to capture himself. "Its unique signature nailed it," CRMIT spokesman Bruce Marcus WAINXG said. The offender also had a habit of broadcasting Tchaikovsky's *Nutcracker Suite* and certain DTMF strings.

[Via ARRL Newsletter]

Gamma Rays Cause HF Blackout

Scientists in the USA have requested input from radio amateurs following a rare astronomical event. A gamma ray burst occurred at 1022 UTC on 27 August from a neutron star 15,000 light years away.

Experimental physics VLF monitoring circuits maintained by Stanford University recorded absorption down to tens of kilohertz and scientists believe there was an almost total blackout on medium wave and on frequencies up to 40 m, for several minutes or longer.

Paul Harden NASN, of the National Radio Astronomy Observatory at Socorro, New Mexico, has requested data from any amateurs who were lucky enough to be on the air during this rare occurrence.

[Via RSGB]

ar

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■ Equipment Review

Magellan GPS-2000XL Mk3 Receiver

Richard Murnane VK2SKY
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This review of the Magellan GPS-2000XL Mk3 follows on from my earlier look at the Magellan GPS Pioneer, in the July 1998 issue of *Amateur Radio*. The Pioneer, a low-cost (\$299) "entry level" Global Positioning System receiver, performed fairly well, though it had its limitations, which I noted in the original article.

Since then, I have had the opportunity to try out one of the mid-range Magellan models, the GPS-2000XL Mk3.

At a Glance

The GPS-2000XL is somewhat bigger than the Pioneer, and weighs in at 283 gm, somewhat lighter than my Yaesu FT-50 at 350 gm. The case has a heavy rubber backing so it won't slide around easily, although I did manage to launch it off the dashboard a couple of times, so the optional mounting bracket is worth considering! The case is nitrogen-filled and waterproof, according to Magellan. I took their word for this.

The unit runs off four AA batteries for up to 24 hours; considerably less if you use the display back-light. If you plan on doing much of your navigation after dark, you'll need to purchase the option external power/data pack.

The control layout is similar to the Pioneer, with four cursor keys for navigating around the screens, an ENTER key for selecting items, MENU key for accessing other options, GOTO for navigating towards a predefined location, back-light control and, of course, a power switch.

In addition, the GPS-2000XL has a CLEAR button to exit the menus without making a selection, and a NAVigation screen selector.

Performance

At \$469 the GPS-2000XL is substantially more expensive than the Pioneer, so the question that arises is: *what am I getting for those extra dollars?* The answer is two-fold: improved performance and extra features.

The GPS-2000XL features what Magellan calls *AllView 12 Technology*. In plain English this means that the 2000XL has a 12-channel receiver, so it can acquire positioning data from up to 12 GPS satellites at the same time. By comparison, the Pioneer has only two channels.

Remember, that in order to determine your position in three dimensions, a GPS receiver needs to be able to "see" four satellites [see text box: *A Slight Crack in the Nutshell*]. The Pioneer's two channels would spend half their time on the first two visible satellites, then go to the next two, and then collate the data to compute your position. When more satellites are visible, the time to check them all increases. In contrast, each of the 2000XL's channels can devote itself full time to each satellite, so it can acquire the data and crunch the numbers much more quickly.

In practical terms this means the 2000-

XL is ready to go after power-up much sooner than the Pioneer. The specifications suggest three to five minutes from cold, but I found it would typically pick up half-a-dozen satellites in less than half a minute. The receiver also updates its position readout more frequently as well (about once a second).

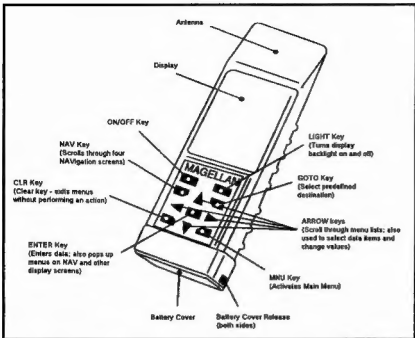
The 2000XL's receiver seems to be more sensitive than that of the Pioneer. For example, under forest cover, the Pioneer tended to lose tracking very easily; the 2000XL seemed to fare much better, though it still suffered when the trees got thick enough.

Magellan specifies a position accuracy of 15 metres RMS when Selective Availability is turned off (Selective Availability is a deliberate random error that the US military can activate in the system to reduce its usability by unfriendly forces.) The specified velocity accuracy is 0.1 knots. They claim that the unit is also usable at speeds of up to 1600 km/h and altitudes of up to 17,500 m, but I didn't have the opportunity to check either of these.

One test that I performed was marking a position, travelling some distance away, then returning to the original spot and checking how far away from that spot the receiver said I was. In fairly open locations, with a clear view of the sky, I



The Magellan GPS-2000XL Mk3 receiver is slightly larger than the Yaesu FT-50, but is lighter by 67 gm.



A drawing of the GPS-2000XL Mk 3, taken from the instruction manual, which shows the main features and controls.

found the GPS-2000XL accurate to within 10 or 20 metres.

In my review of the GPS Pioneer I quoted a worst case figure of up to 600 metres. In fairness, I should say that the 600 m figure arose when the reference position was on the windowsill of an apartment block, which had several other tall blocks in the area. Performing a similar test with the 2000XL, the accuracy degraded from 10-20 m to around 70 m; however, the test conditions were not as severe as for the Pioneer, so perhaps my comments in the earlier review were a bit harsh.

The lesson to be learned is that GPS performs poorly in built up areas where there is not a clear view of the satellites in the area. Even recent tests on a BMW mobile GPS system reported severe problems when navigating in the city.

Features

The basic function of the GPS-2000XL is essentially the same as the Pioneer, or any other GPS receiver: it works out where you are currently located, and tells you.

Various kinds of information can be derived from the basic position data. Most GPS receivers, including the

Pioneer and the 2000XL, allow you to program in *landmarks*, ie known reference points. You can memorise your current location as a landmark, or manually enter the co-ordinates of a known location, using a map or a reference book such as the *Australian GPS Location Guide*.

You can then tell the receiver where you want to go, and it will tell you which direction you should travel and how far away it is. Using the position difference between successive readings, it can also tell you how fast you are travelling.

When you first switch on the GPS-2000XL, the EZstart™ software asks you to tell it roughly where you are located. Knowing what country and state is sufficient for the receiver to determine which satellites should be in the area, and after a few minutes it will determine your location.

You can customise the receiver in ways too numerous to list here. Briefly, you can select co-ordinate systems, time, speed, distance, elevation, map datum, plotting options and so on.

The GPS-2000XL display is a dot matrix type (the Pioneer, on the other hand, uses fixed icons.) This allows it much more flexibility in the kind of

information it displays. The 2000XL offers seven basic navigation screens, some of which can be customised to display information most suitable for your particular application:

- First and second position screens; display raw position data; latitude, longitude, altitude, date and time, and reference datum.

- NAV 1: When a landmark has been selected, this screen displays Bearing, Distance to that point, plus your Heading and Speed, and direction pointer to the target.

- NAV 2: An alternative to NAV1, displays Velocity Made Good (ie towards the landmark), Time to Go to next landmark, Estimated Time of Arrival at end of route, Cross track error. This last item tells how far left or right of the "line of sight" path you are.

- Pointer: For those who prefer a compass style display, this screen displays a pointer, Bearing and Distance to landmark, and Time to Go.

- Plotter: This screen displays a plot of the path you have travelled, plus Bearing, Distance, North indicator, and the straight line path. The display can be scaled from 100 km left to right across the screen, down to 20 m. In addition, you can measure the distance and bearing between any two landmarks displayed on the screen.

- Road: Shows the Bearing and Distance to the landmark, direction pointer, plus a pseudo 3D graphic of the "road ahead" The road graphic scrolls as you move.

Up to 200 landmarks can be defined, each with a short name. Up to 25 landmarks may also be programmed with a 20-character message which is displayed on the screen when you get close to the landmark. Five routes of up to 20 legs each can also be programmed. A "man overboard" feature lets you backtrack temporarily and pick up your trail where you left off. The unit can display other data, such as an odometer, sunrise/sunset times and phase of the Moon.

The GPS-2000XL manual thoroughly describes the operation of the unit, plus some useful reference material, eg an introduction to GPS, description of the National Marine Electronics Association (NMEA) data format, and a glossary of GPS terms.

A Slight Crack In the Nutshell

In my review of the Magellan GPS Pioneer, I mistakenly commented that "using as few as three satellites, one's position can be triangulated in three dimensions" [GPS in a Nutshell, *Amateur Radio*, July 1998, p 14]. In fact, four satellites are required to accomplish this.

Thanks to Andrew Punch [c9608721@alinga.newcastle.edu.au] at Newcastle University, who pointed out my error, and provided the following explanation:

"The old Omega system did only require three stations to find a position, but you also had to have a rubidium driven and accurately set clock. So basically you have three known factors: the absolute distance to each of the stations. These three known factors are used to calculate the three unknown factors: x, y and z - representing a 3D point.

"Accurate clocks are not cheap! So in the GPS system another approach was thought up. Throw away the accurate clock source. But then we are left with two knowns: the difference in distance between each pair of satellites. We need three knowns to find the three unknowns. The answer: use four satellites instead of three. So with four visible satellites there are three known factors, thus the three unknowns can be found.

"It is simply the principle of high-school mathematics of 'simultaneous equations'. The result of this is if you have a certain number of unknown values you must have the same number of known values in order to solve it."

Other Goodies

A few other refinements are worth a mention here.

● Anyone who has ever triangulated positions on a map knows that errors can creep in when using reference points that have too little angular separation. So it is with GPS; errors can also arise when using satellites that are close to the horizon. The 2000XL has a Geometric Quality alert indicator that shows when

the current satellite positions may not be giving accurate readings on the ground.

● Under poor conditions, the receiver may not be able to see the minimum of four satellites required to calculate your position in three dimensions. If only three satellites are visible, the GPS-2000XL can still provide a usable position reading in two dimensions, ie latitude and longitude but no altitude.

● With the addition of the Magellan DBR™ or compatible differential beacon receiver, the GPS-2000XL can make use of Differential GPS signals, typically improving the position accuracy down to the order of centimetres. A differential radio beacon must be within range to use this feature. The beacon notes the difference between its known position, and its position as reported by its own GPS receiver. It then transmits positional error information to DBR equipment in the area, which can then cancel out an error introduced by Selective Availability or poor satellite geometry.

● The satellite status display is an improvement over the Pioneer's, in that it displays the satellite signal strength, and the estimated position error.

Room for Improvement

There was little I could complain about on the GPS-2000XL, but a few little matters could be put on a wish list:

● The use of the display back-light nearly doubles the battery consumption, from 80 mA to 145 mA, with the obvious reduction in battery life. The back-light could automatically turn itself off after, say, 30 seconds; I don't recall seeing a set-up option to allow the light to be programmed this way.

● There is no provision for an external antenna; however, the internal patch antenna works well for most situations.

● I found the usage of the cursor keys slightly inconsistent. In some cases, the right and left keys mean "go to next or previous item", while the up/down keys mean "pick next or previous value for the current item". In other cases, the key meanings are transposed. However, this is a minor quibble.

● Like the Pioneer, the display doesn't make it very obvious when satellite lock is lost. While both units have an icon to display the tracking status, I

Australian APRS Internet Mailing List Now Available

In the July issue of *Amateur Radio*, I mentioned that Darryl VK2TDS was looking to establish an Internet mailing list for those wishing to discuss the Automatic Position Reporting System. That list is now in operation. To subscribe, send an e-mail message to majordomo@marconi.mpce.mq.edu.au. In the body of the message, put the words *subscribe ozaprs*. For more information on Internet mailing lists, see my article in the October 1997 issue of *Amateur Radio*.

Also on the Internet, Jack Yeazel N4TEB and Joe Mehaffey W2JO have set up a very useful page of GPS reference information at <http://joe.mehaffey.com>.

still think that the position display should blink, and an audible alert like the beeper on a cheap digital watch, would be a useful feature.

APRS

The GPS-2000XL is able to pass positioning data to other equipment using the standard NMEA 0183 protocol (version 1.5 or 2.1). Amateurs wishing to experiment with the Automatic Position Reporting System (APRS) will need to purchase the optional 12V power/data module, or the PC upload/download kit.

Conclusions and Purchasing Information

Overall, I found the Magellan GPS-2000XL to be a competent performer and easy to use. Thanks to Chris Ayres at Dick Smith Electronics for the loan of the unit.

Magellan GPS-2000XL MK3 Satellite Navigator, D-3928, \$469.

External power module + NMEA data interface D-3902, \$99.95.

PC Upload/Download module will be available soon, D-3916, \$299.

Australian GPS Location Guide, B-2390, \$14.50.

Carry case, D-3903, \$34.95.

Mobile mounting bracket, D-3901, \$55.00.

■ In the Workshop

A J-Pole Antenna for Two Metres

Drew Diamond VK3XU
45 Gatters Road
Wonga Park VIC 3115

If you want a simple, low visual impact, omni-directional, effective vertical antenna for VHF work, then the j-pole is probably one of the easiest antennas to make and get going.

The radiating part is a half-wave length rod, to which is attached an electrical quarter-wave matching stub, shorted at the base.

Our coax feed-line is connected at the 50 ohm (or 75 ohm if you wish) point about 50 mm from the base of the stub. Shown on the drawing are formulas for scaling the antenna for bands other than 2 m (144 - 148 MHz).

Construction

For mechanical strength, reasonably large diameter tube should be used for the radiator and stub. Also, tube or rod which is too thin will whip about in the wind,

and cause significant SWR variations during use.

My local aluminium merchant stocks tube which is nominally 16 mm diameter (actually 5/8" - apologies again for having to mix metric and Imperial), which is a nice size to work with, and "looks right".

The base is made from a 50 mm length of aluminium extrusion measuring approximately 82 x 28 mm, which was found in the merchant's off-cut bin. Total cost for 2.5 m of tube and base was \$16.

Fabricate the base as shown. If you have access to a drill-press, drill the holes to tube diameter. To preserve alignment accuracy, the base should be fixed squarely upon the drill table as shown in Photo 1. Or, with an ordinary electric drill, accurately mark out the hole positions on both side of the base, then drill these under-size separately. Enlarge

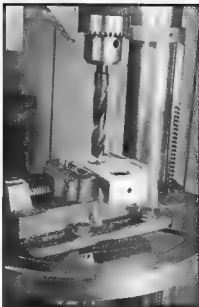


Photo 1 - Drilling the base.

to tube diameter with a rat-tail file and/or a tapered hand reamer. Similarly, drill the two lock-screw holes.

A 90 mm x 40 mm rectangle of aluminium sheet is used to make the coax bracket. Note the 10 mm extension to accommodate the stainless steel hose clip.

Photo 2 shows a method of curling, or wrapping, the aluminium around an off-cut of metal rod of the tube's diameter. Starting at the end of the bracket, the sheet is progressively gripped in the vice then curled around the rod, a little at a time.

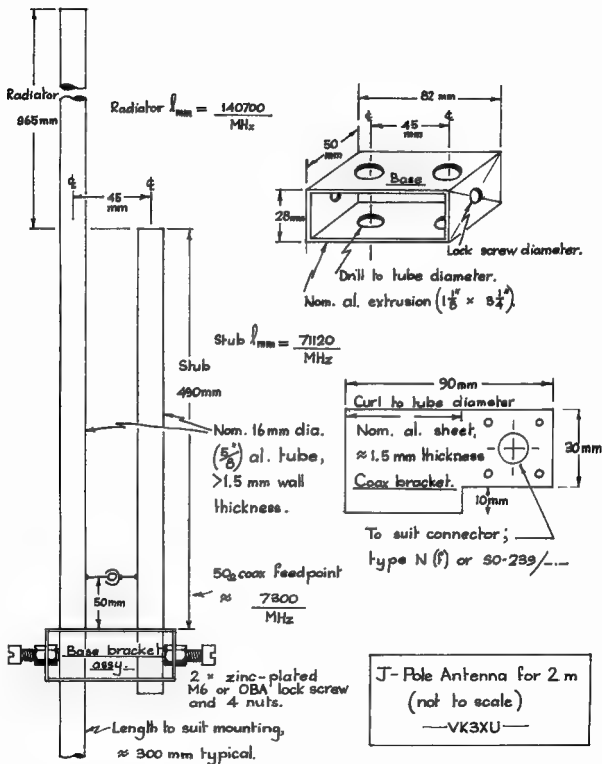
Photo 3 shows the components of the base and coax bracket before assembly. A length of RG-58 coax outer braid is soldered to the inner of the coax connector. A second stainless hose clip attaches this braid to the radiator section of the stub rod. You should find a range of hose clips at your local auto parts supplier.

Final assembly of the base and feed point is shown in Photo 4. Note how the lock screws have been fitted to the base with a nut each side, the screw being made to bear firmly upon the tube in the first instance.

Lock by pinching up the external nut. Use zinc-plated or stainless steel screws and nuts. Do not use ordinary steel, brass or nickel-plated hardware if you want to avoid serious corrosion.



Photo 2 - Forming the coax bracket.



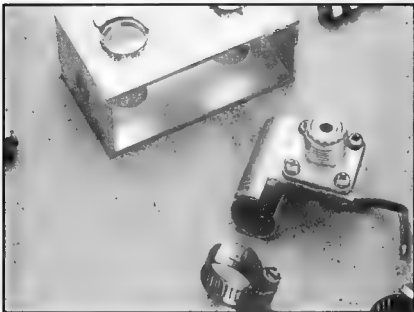


Photo 3 - The antenna base components.

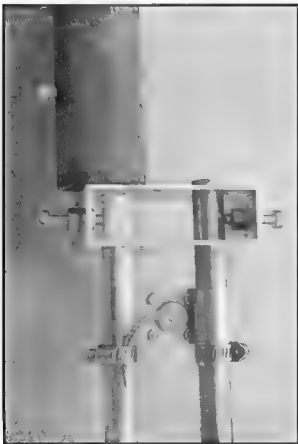


Photo 4 - The final assembly.

Attach a short length of low-loss coax cable to the feed point. Insert an SWR meter in the line between radio and antenna. On a clear channel about mid-band (and not a repeater), key the transmitter on. You should obtain a reasonably low SWR at the initial 50 mm location shown. If it is much higher than about 1.1, experiment with the feed position, and perhaps also the stub and radiator lengths, to obtain lowest SWR reading. Typically, if you achieve an SWR of 1.1 at 146 MHz, it may rise to about 1.5 at the band edges.

When satisfied that all is well, the antenna should be placed in the chosen final clear elevated position, be it chimney-mount, vent-pipe, fascia mount, or atop your mast. Fix with suitable hardware such as j-bolts, u-bolts or threaded set-screws as necessary.

Finally, remember to wrap black insulating tape around the coax plug and any exposed thread of the coax socket.

Reference

Radio Communication Handbook, 6th Edition; RSGB. AT

An additional useful precaution is to include plenty of petroleum jelly in all metal to metal joints, thus filling voids and excluding moisture.

The length of spare tube projecting below the base is irrelevant. So, in the first instance, make the radiator and stub at least 20 mm longer than that shown, in order to allow for errors and vagaries, and permit fine tuning upon test.

Adjustment

Position the antenna in a clear position, well away from any objects. A 2 m length of ordinary galvanised water pipe driven into the soil near your shack will do initially, into which is fitted the bottom extension of the j-pole.



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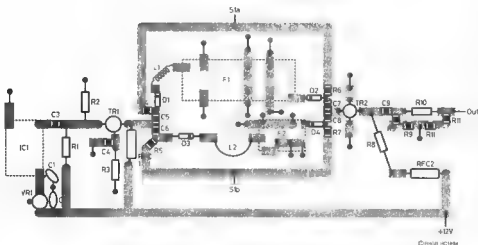
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For the 432 MHz TOKO 7HW, part No BONEX 080235, the UK phone number of BONEX is 01753 549502.

The original gave 10 mW on 144 MHz and 1 mW on 432 MHz. Harmonics were

There are parts on both sides of the boards. The more critical parts should be SMD types, although ordinary ones could be pressed into service.

The technique is to apply masking tape to the surface while drilling and filing during construction. The masking tape also provides a good surface to draw on whilst marking out the project. The tape can be easily removed after work has been carried out leaving the surface free from scratches.

■ Antennas

Random Radiators

Ron Cook VK3AFW and Ron Fisher VK3OM
C/o PO Box 2175, Caulfield Junction VIC 3161

Feedback

In August *Random Radiators* a challenge was issued to readers to send in contributions. Following that there was a discussion on low dipoles, complete with some computer simulations of radiation patterns. Astute readers will have seen a response in the form of technical correspondence (September *Amateur Radio* p46) from William VK3MI.

Not So Perfect Ground

William noticed that my plots were for perfect ground conditions, a convention often used because of the wide variation in real ground conditions. For the ground losses assumed by William he found that there was an additional 8 dB loss for the 1.8 m high dipole compared to the 13 m one. He also made the very interesting observation that raising the dipole to a modest 4 m gives a 4 dB improvement.

Another good point made by William was the usefulness of high angle radiation for ranges of 30 to 600 km and its presence on 80 m for all but two hours each day just before dawn.

Another person to respond was Ric VK7RO. He thought my article was misleading, and says, "I suspect that your NEC-Win Basic program is based on MININEC which has very noticeable errors at heights of less than 0.2 wavelengths. Using ELNEC, a MININEC based program, I once managed an alleged gain of 30 dB from a VERY low aerial."

"I enclose two plots of your 80 m dipole made using EZNEC, a NEC-2 based program using a Sommerfield-Norton high accuracy ground model. This program is good at even low heights. They show the gain of the dipole at 1.8 m is 10 dB less than at 13 m.

"May I recommend that you read 'MININEC': The Outer Edge of the Sword' by Roy Lewallen W7EL, in QST

for February 1991, and check his Website for more good information.

"I have learnt more about aerials by playing with these analysis programs than by years of reading books. The ability to compare gain figures and not only patterns is extremely useful. The best example is probably the one from K6STI showing that a triangular loop fed in the centre of the bottom side has less gain at low angles than an inverted vee at the same height. But the pattern of the loop looks wonderful for low angle radiation!"

"Keep up the good work."

Response

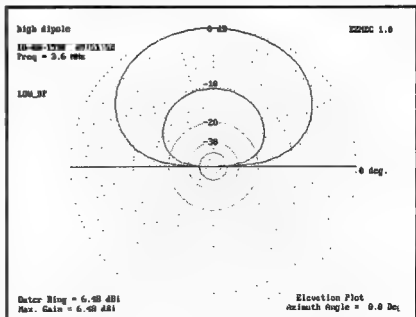
Well, at this point I should make some comments. I did make the point in the concluding part that "placing the antenna at 1.8 m will result in much of the signal being absorbed by ground losses.....". Ric has quantified the extent of these losses

at 10 dB. William got a slightly better estimate of 8 dB, but perhaps his computer program doesn't use as comprehensive a ground model as Ric's. The actual losses will depend on the environment, only part of which is the ground.

So, the bottom line is, yes, a dipole at 1.8 m will work; raising it to 4 m will allow it to work better, and raising it to 40 m will allow it to work even better still

Ric's comments about the triangular loop are interesting. I presume it was a full wave loop with the apex up. The shape of an antenna's pattern is often the basis of gain calculations. The theory is that if there is a good match, all the incident power goes into the antenna, where a little is lost in ohmic losses and the majority is then radiated in proportion to the pattern.

I became aware of some apparent exceptions to the rule some 30 odd years ago when some VHF beams with sharp patterns showed measured gains many dB less than expected. The problem was, I believe, that the assumption of low losses in the antennas was wrong and that the antennas had efficiencies of less than 50%, so producing gains worse than 3 dB below the pattern calculation.



Plots of the 1.8 m high and the 13 m high 80 m dipoles on the same scale made using EZNEC, a NEC-2 based program using a Sommerfield-Norton high accuracy ground model.

I'm not sure what the problem with the loop is. If an antenna has a good pattern and low copper losses, but couples into a lossy ground, then it may have less gain than another antenna which has a broader pattern.

Does the loop couple more closely into a lossy ground than an inverted vee? Does the loop become superior at a greater height? Is there a weakness in the computer program?

I don't know; however, most antenna gurus contend that loops are less affected by the environment than other antenna types.

So, there is a mystery to be explained by someone. Any takers?

Plots

Ric has enclosed three plots from his program. I'm submitting the third one which shows both the 1.8 m high and the 13 m high dipoles on the same scale. Unfortunately, he has used a dot matrix printer whose ribbon is not brand new, so it will not reproduce as well as it should.

If you send in a diagram that is worth publishing, please make sure that it is of high contrast and will still be readable when reduced in size to a half page width.

Ground Plane Radials

In a postscript, Ric mentions George Brown's autobiography, *Part of Which I Was*.

When he was working for RCA, George invented the Ground Plane, but he only used two radials. The sales department thought nobody would believe that it was omnidirectional, so they added two more radials!

Anyone want to cut off half their ground plane radials?

Windom

Ric also mentions that in Windom's original article (*QST*, 1929?) he used a VERTICAL dipole with a single wire feed.

A horizontal wire has a constant characteristic impedance, so it can be used as a feeder and will not radiate much if correctly matched. A sloping wire or a


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vertical wire has an average characteristic impedance, but it is no longer constant as the capacitance per metre gets less as the wire gets further away from ground.

Thanks

Thanks very much Ric for taking the trouble to write and to send in the print outs. Thanks also to William for the copy of his letter. Without these useful and thought provoking contributions there can be no *Random Radiators*. ar



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■ Women in Radio

A Letter to Your XYL

Christine Taylor VK5CTY
16 Fairmont Avenue
Black Forest SA 5035

This article was first printed in the January 1991 issue of *QST*, the monthly magazine published by the American Radio Relay League (ARRL). I found it in the *YLRL Harmonics* magazine, the quarterly magazine similar to the *ALARA Newsletter*. It is reprinted here with permission from the ARRL.

I think it will touch a chord with many YLs and the XYLs of current amateurs. Only the actual conditions for amateur licences in Australia and in the US differ. The feelings and attitudes of those involved in the world of amateur radio are the same.

Dear OM,

The following is an open letter to your XYL. It's my experience - still fresh as I write - of becoming a ham after years of disinterest. I'm still not over the surprise! If it encourages just one XYL like me to take a Novice class, it will have served its purpose.

Dear XYL (Ex-Young-Lady),

That's what they call us, you know, these ham-husbands of ours. But before you take offence, be aware that he's your OM - Old Man. Feel free to call him that. Anyway, if anyone had told me a few months ago that I would be (A) a ham, and (B) enjoy being a ham, I'd have suggested a long walk off a short pier.

For seven years, my OM, Bill N4BTE, had suggested wistfully that "I ought to try it" or that he'd "like it if I were a ham, too". Because he has one of those minds that can joyfully muck around in picofarads and milliamperes and 3-element beams, and I need ON-OFF printed on the kitchen light switch to feel comfortable around electricity, I knew that even if I tried, I could never be a ham. I already couldn't understand half the words in the conversations I overheard on his hand-held transceiver (the little radio with the stubby antenna he carries everywhere: you know the one). And I didn't want to

understand. I had no interest in ham radio. Zip. Zero. Nada.

Nothing changed, but one day I finally ran out of excuses. "The kids are too young" (the boys are 22, 19, 17 and 13 now, and two of them are hams). "The cost is too high" (the Southern Maryland Amateur Radio Club course was free). "I'll never understand it!" (So what? The basics can be picked up on faith and memorisation, and I can take and retake the test until I pass).

I was out of excuses, and I still had no interest whatsoever in ham radio. But I have a strong interest in my OM, even in our 25 years of marriage. As a former

**When the licence came,
informing me that I was
KA3VNK, it was just a nice
token of a way to please my
husband.**

officer in the US Marine Corps, wistfulness doesn't come often from him. Yet, it was there even after seven years of hitting a blank wall with me (that wistfulness is in your OM's voice. I hear it almost every day. "Oh gosh, I wish my XYL would...." "I hope your OM knows how lucky he is...." "I've tried for 15 years....").

So I decided I'd let him take me to the first session of a 10-week Novice course. There my worst fears were realised. I'd have to master Morse code and pass a code test. Then I'd have to take a written test. Most of the students were men who already spoke an electronic language I couldn't grasp (and still can't, by and large) even though they weren't hams yet. But one look at my OM's barely masked joy at having his XYL there prompted me to do my best. I gritted my teeth and plodded into it.

[In Australia we do not start off with Morse code, we can get our first licence with just the theory and the regulations. VK5CTY.]

In spite of our cheerful and knowledgeable instructors (Lee KF3T, Vic WA3YVV and Mike XO7V), I didn't enjoy those Monday nights except for the new friends we began to make. I was tense, frustrated and asked dumb questions ("Well what is a radio wave? I still don't see what you mean...")

I struggled with Morse Code (I kept hearing "A" for "N" and I lost the whole last part of the alphabet somewhere). But one glance at Bill's happy face kept me going. Fortunately he was almost always able to clarify, at least partly, whatever eluded me in class.

I practised code at home for about 30 minutes every day. I recorded the code sessions at class and used the ARRL training tapes. After all, I wanted to give Mr Morse a fair chance at my middle-aged brain. I read chapter after chapter in the manual and I understood about every 20th word, usually 'and', 'the' or 'what'.

Suddenly, one night after the code practice session, I was informed that I had passed my five words per minute requirement in Morse Code (a combination of 25 letters and numbers in 60 seconds works out to about five words per minute). That part of my Novice test was behind me. I was stunned. Only then did I understand what the instructors meant about the code requirement. The worst was over. I had passed the Code test. I was flooded!

[In the US there are two ways to pass the code. Option 1 is to copy a simulated code QSO or contact between two stations and answer questions about the text, eg the names and call signs of the operators or the antennas used, etc. Option 2 is to copy 25 consecutive letters or numbers (one minute) absolutely correctly, within the five minutes of the Code test. In Australia you may have no more than 10 errors in the 125 (5 times 25) characters of the five minute test. It would seem that in the US the Code test may be taken within the classroom situation; in Australia it must be done at a separate examination. VK5CTY]

A few weeks later I had memorised enough of the information to answer 22

of 30 multiple choice radio rules and electronics questions correctly.

[In Australia this would be 35 of 50 theory and 21 of 30 Regulation multiple choice questions .. VK5CTY.]

Suddenly it was all over. I was a Novice Amateur Radio Operator. It was unbelievable - I was in shock. My husband was as proud as a fan-tailed peacock.

During the six week wait for my 'ticket' (an FCC licence with my callsign on it) I still had no over-riding interest in using it. As a Novice I would not be permitted to talk to my OM via the 2-metre FM repeater (a station that receives radio waves and sends them back so that hams everywhere in the area can talk as they inch to and from work). To use these repeaters I would have to have a Technician's class (the next step up) licence. No way!! I'd survived my Novice class and that was enough.

[In Australia, with a Novice Limited licence - which a pass as explained above would give you - you CAN use these repeaters .. VK5CTY].

Alas, we had no other radio I could use, and the budget was strapped, to say the least. On the way back from a hamfest, when my husband asked how I felt about being a ham, I told him that my whole ham experience so far seemed to be "all pain and no gain".

When the licence came, informing me that I was KA3VVK, it was a nice token of a way to please my husband. But a couple of weeks later, Bill saw an ad for a used 10-metre transceiver (the radio is not that big: 10-metres refers to the length of the radio frequency waves it sends and receives). It was only a bit over \$100 so he sold an old receiver and we bought it.

For \$20 and a ball of string he and our son flung a dipole antenna (measured length of wire) up 20 feet and stretched it between two trees beside the garage.

Then they ran a length of co-axial cable (heavy round wire) from the centre of the antenna wire (attaching the co-axial cable to the centre divided it into two half-sections, thus it became a dipole - get it?) in through the family-room window and attached it to the radio. He hooked up the Morse key and a microphone.

Now, according to our class instructor, I could "work the world". This is

called DXing (talking over great distances to other hams in foreign countries).

Because we had had no HF (high frequency 1.6 to 30 MHz) radio in years, Bill had not done much DXing. Besides, he is service-oriented (he's applied to be our county's Amateur Radio Emergency Co-ordinator), he enjoys his 2-metre (tinier antenna) rig in the car and had not missed the opportunity to get into 10-metre DXing. (There! You understood exactly what I meant by that now - see how fast it can come?)

One dreary Saturday afternoon we turned on our newly acquired 10-metre transceiver and began tuning up and down through the band where Novices are allowed to use 'phone' (talking by microphone rather than sending Morse code). Bill disappeared after a bit and I was alone.

It was all garble and Greek to me, and besides, who would ever hear the tiny 25 watts (like a light bulb) of power I put out over the 200+ watts I could hear the

I still don't muck around in picofarads and I still don't understand exactly how a 3-element beam works, but at least I know what one is!

big booming males reporting as output power. Not only that, but it was a contest weekend and most of the hams were spitting out contacts (QSOs) at the rate of one every five seconds. But I sat and listened.

I heard what they wanted a ham they had contact with to say, and because the first attempts this way wouldn't involve a lot of technical ham talk I wasn't quite ready for, I rehearsed my responses in my head, waited for a QRZ? (who is calling me?), took a deep breath and quavered into my mike "KA3VVK".

To my utter amazement and horror, I heard a voice say, KA3VVK this is WBSBIR. You are 5 by 9 into Houston, Texas. My name is Al and my 10-10 number is I sat stunned in my Maryland family room. A piece of wire in the trees and I was talking to someone in Texas!

I was honest - he was my very first contact, and I had no 10-10 number,



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whatever that was (helpful hams later told me and now I have one too), but I said he was '5 by 9' (I guessed) in Maryland and my name was Bobbi. He thanked me, wished me 73 and was gone. (73 means Best Regards, 88 means Hug and Kisses - send that to your OM or close friends. Or grandchildren. The Latin Americans tend to send 88s to all XYs. I ignore that, but off-air I giggle).

My log book shows that I waited two minutes to understand what had happened then I found another frequency and plunged in.

Seventeen days later I "hit" Puerto Rico, the next day, Canada and Alaska.... and one month later I'd made friends in Europe, Africa, Central America and South America. One night I had a gentleman repeat his callsign and I discovered that my tiny rig had taken me to Japan. I was hooked! Overjoyed! Thrilled and delighted to be a ham!

After surviving an onslaught of real life 88s for getting me into ham radio, my OM was flabbergasted when I worked 69 non-US stations in 44 different countries in the next 30 days - between



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I talked to lots of US hams, too - and heard the wistfulness in your OM's voice. So that's why I'm writing to you.

All this DX took place in the last month as I'm writing this down. Yes I caved in and took the radio club's upgrade course to become a Technician (no more Morse code, just more memorisation - and a wee bit more understanding: it'll come, give me a decade). I passed that, too! So now I can chat with my OM all the way to his office 30 miles away.

I went into ham radio with only an intent to please my husband by getting involved in a part of his life that's important to him. I had no interest and the course was frustrating. But weeks after it was over and I had passed, I found a sudden joy in an area of ham radio that my OM hasn't yet tried. And I renewed my childhood interest in collecting stamps and postcards as QSL cards

(special postcards hams use to verify QSOs) began arriving from all over the US and abroad. Mail time is exciting every day, now!

I still don't muck around in picofarads and I still don't understand exactly how a 3-element beam works, but at least I know what one is!

If your husband has given you this letter to read you can be sure that he's one of the wistful voices I've been hearing.

Whether you find your own special niche in ham radio - and I hope the blessing comes to you as it has for me - I can tell you that the joy and pride in your OM's eyes and voice will be worth every moment of those weeks of class.

And the feeling you'll have when you hear another OM's voice when he says to your husband, "Boy, are you lucky, I wish my XYL ..." is incomparable.

Sincerely,

Roberta Stoddard Rogers N31AR

ar

QSL Information for VK5MIR Contacts

Arrangements are in hand for the provision of a special QSL card in connection with VOICE contacts made with Andy Thomas VK5MIR during his operations from the MIR Space Station.

A commemorative card is being produced. However, some minor problems are currently being experienced with preparation of the card. It is hoped that this QSL card will be available by the time you read this in the November issue of *Amateur Radio* magazine. The card will commemorate the first use of an Australian radio callsign from 'space' and should become quite a collectors' item.

Discussion with VK5MIR indicates that the VK5MIR special event callsign was used only when the Space Station was over Australia/New Zealand and possibly some neighbouring countries.

Due to the nature of his operations from MIR, Andy did not keep a log containing full details of contacts such as frequency, time, signal strengths, etc. The commemorative card will therefore not carry this type of information.

Those people who wish to obtain a card are asked to make their claim for a contact

by way of their normal QSL card addressed to Ian J Hunt VK5QX, 8 Dexter Drive, Salisbury East, South Australia 5109.

The South Australian Division of the Wireless Institute of Australia is supporting this effort by provision of the costs for production of the QSL card. It is proposed that the card will depict both the MIR Space Station and also carry a photograph of Andy in his Russian space suit.

The claim must be accompanied by either a self-addressed-stamped-envelope or suitable funds to provide for return postage. It is intended that the VK5MIR card will be of standard postcard size, thus an amount or stamps to the value of 45 cents should suffice for postage within Australia.

For QSLs to places outside Australia a "green stamp" contribution is requested.

It is also requested that only ONE claim per station be made.

Please note that the special VK5MIR card is only for contacts made using voice communication with VK5MIR.

Applications for QSL cards for Packet Radio contacts with ROMIR/ROMIR-1 should be sent to the MIREX President, Dave Larsen N6CO, PO Box 311, Pine Grove, California USA 95665.

Ian J Hunt VK5QX

ar

WIA Call Book 99 now on sale - don't miss out!

■ History

Harry Angel VK4HA Silent Key

Al Shawsmith VK4SS
35 Whynot Street
West End, Brisbane QLD 4101

Australia's oldest, and it appears the world's oldest Amateur, who turned 106 last 14 December, fell 'silent key' around 1700 hrs UTC on 16 August 1998 (the weekend where VKs, ZLs and P29 stations remember our fallen Amateurs from both World Wars and other military conflicts).

The cremation, at Albany Creek, in Brisbane's north was conducted by Father Gallagher, himself an ex amateur operator holding callsigns VK2ARS and, later, VK4JG.

Harry's daughter Lillian expressed the wish that Alan Shawsmith VK4SS be present to say farewell to his much

respected mate whom he had known for 63 years. Harry and Alan first met when they sat next to each other to take the AOCPE exam in 1935. Alan has not been in good health of late and requested that WIAQ Past President Rodger Bingham stand in his stead.

As Rodger said at the service, *"I am honoured to be the one to say good-bye to Harry, and offer condolences, on behalf of Alan and the Amateur Radio Community."*

Harry is survived by one daughter, Lillian Allsopp, seven grand children, and 14 great grand children.

Harry was born close to Fulham in the United Kingdom on 14 December 1891. He arrived in VK around 1912 from California, after a trip around Cape Horn as a very young sailor. One of VK4HA's jobs on board was to climb the vessel's 150 ft masts often in seas of up to 40 ft!

Harry enlisted in the 1st Battalion AIF at the outbreak of WWI and was on the first troopship of Australian Soldiers to reach the Middle East - Anzac Henry Benjamin Angel, Private Number 1094.

He was posted to a communications unit based in the North African desert near Alexandria in Egypt. Eventually Harry fell seriously ill with pneumonia and after four weeks in a Cairo Hospital was repatriated home to convalesce. Rather than be



Photo courtesy of the Courier Mail, Brisbane

discharged, he served out the rest of the Great War as a Recruiting Officer.

After the war, he settled in Brisbane, where his fascination and knowledge from his Signals days in Egypt prompted him to open a radio repair shop in 1935, first at Toowong, later moving to the Grovely area. In the same year Harry sat for his AOCPE exam, sitting alongside WIAQ Historian Al Shawsmith VK4SS.

Harry's first Ham activity was that of Amateur DJ playing music. His priceless swag of QSL cards and personal letters of praise bear testimony to his great popularity with other hams and SWLs during this era.

This activity was curtailed in 1937 when the Post Master General's Department disallowed musical entertainment by Amateurs in VK.

When World War Two arrived, Harry Angel put his age back and re-enlisted, serving in the Radio Repair and Maintenance Unit based at Victoria Barracks, Brisbane.

A ham for 63 years, and an active DXer until his 100th Birthday, Harry was NOT known for the "10 second QSO". Rather, he was well known for a "rag chew" and as an ambassador of Amateur Radio for his adopted country, in particular VK4.

No nicer bloke ever pressed a key or mike switch!

A gentle, humble man, Harry served Australia in War and Peace, and will be sadly missed by all.



Photo courtesy of the Courier Mail, Brisbane

■ Operating QSLing! Direct, via the Bureau, or What?

Nell Penfold VK6NE, VK9YE, 9N1NE
QSL Manager VK9NYG (1981, 82), VK0CW and VK0HI (1982)
2 Moss Court
Kingsley WA 6026

High Risk Activity

When seeking confirmation of a DX contact, does the VK operator know if the country has a bureau, whether the DX operator is a member of the bureau or does the DX station accept cards "DIRECT ONLY"?

When the DX operator says via "call book address", does he imply no bureau cards? And we all have an international call book in the shack, don't we?

So you decide to send your card to his call book address. Expecting a reply by airmail you include something for return postage PLUS A SELF ADDRESSED ENVELOPE. However, some countries do not accept IRCs, not being members of the Universal Postal Union, nor allow their citizens to handle American "green stamps" (US Dollars).

Then there are countries where mail pilfering is rampant!

Emerging out of all this seems to be that QSLing is a high risk activity.

QSL Managers

Another aspect to surface in the past few years is the proliferation of QSL Managers who, for better or worse, now number in their thousands. So, one must be sure to listen carefully to the DX station in case he says "QSL to my manager", which he may overlook mentioning for a few QSOs if he is really busy.

Some operators have been known to give the QSL route only when asked, and then admonish the questioner for holding up the proceedings!

So, you have decided on a QSL route. Good luck!

Cost

But another factor has to be considered. Some stations and QSL managers desire that the printing costs of the QSL cards be covered as not many have sponsors who pay for the printing. Therefore, just one IRC or green stamp may not cover the cost of the QSL card AND posting.

As for postage costs, it's cheap from some countries to VK (60 cents from the US) and expensive from others (3 DM from Germany).

Wow, is this DX card chasing expensive!

**VK DXers should now
take a good look at
themselves, and become
proper DXers instead of
"Clayton" DXers.**

But, you go ahead anyway, because you want to be up there on the DX ladder, and you must have the cards to support your claims to countries worked. All this because you heard your call sign and "you're 5 and 9" given by the DX station during the melee (after calling the DX station for a good 45 minutes).

Strange! All signal reports given by the DX operator were 5 and 9! His receiver must be far better than mine!

VK DXpeditions

Let's pass on to the VK scene. QSL practice in Australia is strange. There are some VK amateurs, for reasons known only to themselves, who think it is their God-given right to request QSL cards

direct without even so much as a return envelope, let alone a stamp or the cost of the QSL card, or even a donation (however small) for a VK DXpedition.

Yet, for overseas DXpeditions they don't give it a second thought. Strange, when one thinks that it is more costly to mount an Australian DXpedition to some VK territories and islands than other more foreign places.

A recent survey of some Australian activities to various locations, and one to an overseas country, revealed that with 88% of VK requests there was only an SASE.

Let's take a look at DXpeditions where there are no four star motels, and so on. Most operators would have to spend four weeks away from home and work. It will cost around \$3000 per head for DXpedition expenses, \$2000 for personal expenses (plane flight to departure point), \$300 for meals and so on prior to and after the DXpedition. Also, one must not forget the gifts (read bribes) brought home for the spouse so one is allowed to go on another DXpedition!

There seems to be a great number of amateurs in Australia who think you must be rich because you go off to these DX locations. What a mistake. My guess is at least 95% of the people who go on DXpeditions are far from rich and, in fact, have to do a lot of saving to go. Granted, there are some who are certainly not short of a dollar, but many are not well off. It is known that one amateur, after saving for five years, went on a DXpedition because it was his dream. Now he is madly saving for another one!

Contributel

Now, a bit of soapbox, as the Americans say.

Remember that this is aimed at VKs QSLing to VK organised and run DXpeditions.

To include just one extra 45 cent postage stamp to help support DXpedition/QSLing costs will not break any DXer in this country. It will, however, be well received and appreciated on the other end as it lightens the burden. VK DXers should now take a good look at themselves, and become proper DXers instead of "Clayton" DXers

Support VK DX! Don't just sit there working it! **ar**

■ History

50 Years of the Geelong Amateur Radio Club

Dick Heighway VK3ABK
22 Leonard Street
Belmont VIC 3216

1998 is the 50th Anniversary year of the Geelong Amateur Radio Club Inc. Here is a reflection on 50 years of change in Amateur radio.

The GARC, as it is fondly known, was formed in 1948, at a time of change when life in Australia was converting from wartime reality to peacetime normality. But 1948 normality was very different from the world of 1998.

Wartime restrictions were still evident and rationing of goods, from petrol and tyres to food and clothing, had changed our habits. The Australian workforce were boots, trousers and overcoats, ex-army or airforce depending on your attitude! Wartime rationing had limited our wardrobe, and an overcoat had previously required 40 clothes ration coupons; a whole years supply! An overcoat was a necessary item as, with few cars, we walked, rode bikes, or ran for the bus or tram.

Today's multitude of radio and electronics parts shops, selling all the now vital components, did not exist, and broadcast radio dealers could supply only a limited range of valves, resistors and capacitors for the home constructor. A major event was the opening of disposals stores, selling war surplus components ranging from tanks and Bren-gun carriers for the soldier settlers clearing land and building dams, to jeeps, trucks and motorcycles. And, for the new and renewed Ham, there was radio and electrical equipment that we could previously only dream about, mainly new and state of the art from wartime development.

For the amateur, used to building his own station from scratch, disposals transmitters and receivers, ranging from

portable to airborne, and a multitude of meters, motors and electrical instruments of all kinds were bought. To the new and old Amateur, this was like Christmas!

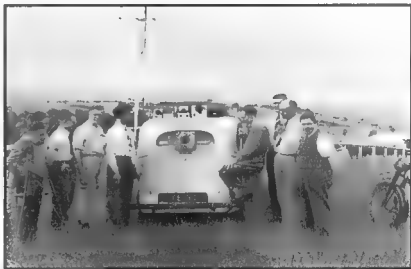
From a meeting of twelve licensed Hams in June 1948, the GARC grew in its first year into an active club, hosting our first WIA South West Zone Convention and, on the final meeting night of the year, 7 December, introduced the new club call sign, VK3ATL, on the 40

metre band. From a small rented room in central Geelong, and later, in 1951, a larger building and space for antennas, the membership increased as radio became better known as a worthwhile interest.

It's of interest to speculate on the availability of hobbies and pastimes today compared to those of 1948. Without the distractions of sport, computer games and all manner of media entertainment so common now, more time was found for educational hobbies, and Amateur Radio was one of the attractions for ex-servicemen and others who had noticed the growth in communications due to wartime developments.

The GARC was able to attract many who were engaged in the growing radio industry, and those who found the thrill of speaking to others around the world, which was not a very common experience in 1948, long before the Internet!

During the early years of the GARC, the interest of students at Geelong schools



Shown here, on 26 November 1949 at Ceres Lookout near Geelong, are some of the original members of the Geelong Amateur Radio Club, with Ken McTaggart VK3NW transmitting on the 576 MHz band across Port Phillip Bay to VK3RR at McCrae. This was a distance of approximately 75 km; not far by today's standards but worth Ken's journey from Glen Iris in 1949. The transmitter would most likely be push-pull RL-18 triodes as a modulated oscillator, and a 'super-regen' receiver, mounted on a family-man's luxury transport of the time! My affordable wheels seen at the right. Those present, seen from left to right are, Bill Barratt VK3WT (sk), Bill Romney, Fred Freeman VK3ALG (sk), Phil Grigg VK3APG (now VK2AGP), Dick Heighway VK3ABK, Ken McTaggart VK3NW, Jack Mathews VK3SY, Ed Kossek VK3AKE (sk) and Bill Brownbill VK3BU (sk). Four months later, the dreamer shown with the pipe made the first VK3-VK7 2 m contact with VK7PF Peter Frith whose obituary was printed in *Amateur Radio* for September 1998.

found a ready made attraction in Amateur Radio. As courses finished, most of these young people moved on to employment and higher education in Melbourne, but during the years 1950-1965, a constant stream of young people passed through the GARC. Some of these are active today in Amateur radio and WIA affairs. Ron Cook VK3AFW, Ray Cowling, VK3ACR, and Ian Cowan VK1BG, all involved and active in WIA affairs, are only a few examples of student involvement in Amateur Radio and as members of the GARC.

These club members, like many others at this time, had acquired a 'no code' licence, or 'Z call', one of the most successful experiments in Amateur Radio. Many others could be listed, some of them still maintaining their membership of the club.

There are, of course, the previously suggested reasons for young people being less interested in Amateur Radio today. But it should also be remembered that Geelong, during the period mentioned, boasted a Gordon Institute of Technology, and several Technical

Schools which acted as a feeder for the Gordon, and also provided technical and trade training for anyone with an inclination for engineering.

Geelong no longer has a 'Technical School' as all have been converted to the ubiquitous 'Secondary College'; and The Gordon Institute of Technology is now devoted to a much more varied range of TAFE subjects. This, with a media showing little interest in science and engineering, is a possible reason for GARC youth membership in recent years being significantly reduced.

In 1968, during a period of activity by a young and enthusiastic membership, Harold MacMillan's 'wind of change' swept through the GARC, and a campaign was launched to acquire a permanent home for the club where facilities could be extended. Increasingly mobile Amateurs with get-up-and-go, and several parents with know-how, were able to work wonders.

A building program resulted in land being acquired at East Geelong, and a multifunction club complex, with space for towers and antennas, was built, giving the convenience and security of home ownership.

From this base in 1969 the GARC became a motivating force in the introduction of repeaters for the increasing use of FM radios, being replaced by taxi and tow truck firms as solid state designs made vacuum tubes obsolete.

After several sites, the present one at Mt Anakie became the home of VK3RGL in the two metre band. Today, the club also maintains a 70 cm FM repeater and a beacon in the 2 m band on the site.

The introduction of FM repeaters made a lasting impression on the Amateur bands and, along with SSB in the late 1970s, and Packet modes and Bulletin Boards ten years later, changed dramatically the operating habits of GARC members, and most Australian Amateurs.

As the radios available to Amateurs changed from adapted war surplus and superseded commercial transceivers to those specifically design-

ed for the purpose, the GARC proceeded to update the station equipment to follow modern trends, and became increasingly involved in DX contacts on the HF and VHF bands. Field day participation has been a feature activity of the club with strong teams securing many first placings on HF and VHF/UHF.

In 1980 the GARC introduced the first VHF/UHF field day, running concurrently with the annual Ross Hull contest. This has remained a major annual event, resulting in a continuing number of first placings for the club.

With the expert assistance of DX operators, in 1998 the GARC qualified for the HF DXCC award and now operates on all bands from 160 metres to 70 cm with modern transceivers, due to a team of experienced operators in one of the 'special interest groups' introduced in 1994.

These groups promote and assist in areas of interest such as HF, VHF, satellites, packet radio, and a group of retirees who meet at the club for coffee and a chat each Wednesday afternoon. Several of these are original 1948 members of the GARC who have been actively assisting the club through fifty years of service.

New members continue to keep the membership to an average of 68, assisted by AOCP tutors and an examination program operating under the WIA sponsored scheme.

So, 1948 was a year of achievement for the GARC and for Geelong. Also for Australia with the launch of the first Holden motor car. For the world, the transistor was invented, and the 'Hot Big Bang' theory was proposed!

The GARC arrived on the scene in an epoch year and has become a success story in the world of Amateur radio.

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ALARA

Christine Taylor VK5CTY

ALARA Publicity Officer
16 Fairmont Avenue, Black Forest SA 5035
Packet: VK5CTY@VK5TTY

ALARA Contest

YLs and OMs both, remember the ALARA Contest on 14 and 15 November. The rules were printed in last month's *Amateur Radio*.

There are some changes this year. Multiple contacts with the same station on the same band may be made as long as there are at least two hours between contacts. This should make it easier for everyone to find contacts for as long as each band remains open.

For members who like to use CW, the Florence McKenzie Contest is now open to us all regardless of licence level. The only limit is the lower limit of at least five CW/CW contacts. Hopefully, some of us will have more than that, though.

What about getting your Club to participate, too? The last couple of years the Club section has been won by VK5GGA, a Girl Guide Radio group, so why not copy them and participate.

It really is a friendly contest. Please join in!

The Svalbard Meet

Gwen JW/VK3DYL

For the information of non-DXers, the prefix JW is allocated to the archipelago of Svalbard in the High Arctic, about 700 km north of Norway. Originally the island group was known as Spitsbergen but in 1925 it was renamed Svalbard, the old Norse name meaning "the land of the cold coasts".

After the YL World 96 Meeting in Berlin it was decided that the next international YL meeting would be held in 1998, in Longyearbyen, Svalbard. So it was there, in August, that 51 YLs (plus a few friends and OMs to carry baggage) gathered from 14 different countries to spend a few days in friendship and to experience, in 24 hour daylight, the wild, unspoiled arctic nature not far from the North Pole. And yes, it was cold; and no, we didn't see any polar bears!

We "took over" the very comfortable Svalbard Polar Hotel which had been transported from the 1994 Olympic Village at Lillehammer. We also had the use of the

radio shack, belonging to the Svalbard group of NRRL, consisting of a two-roomed hut with a TS-440S HF rig and a five element Fritzl FB antenna mounted on a 33 metre high mast; but no loo, and seeing the hotel was a 10 minute walk away

With so many keen operators, we were limited to an hour each to start with. As soon as the plane had landed and we had been taken to the hotel, the first scheduled operators dumped their luggage and dashed to the hut. Oh dear, a great big black hole, no signals in or out. "It was great yesterday", said Mathias JWSNM!

Anyway, during the night things came good again and happy faces were seen returning to the hotel at all hours of the day and night for the next four days and the call JW0YL was heard around the world. During my hour on the Saturday afternoon, I pointed the beam towards VK and chatted with friends who kindly kept skeds with me. It was great!

We were given a guided tour of Longyearbyen (duty free shopping!) and taken on a boat trip on the Isfjord to visit the Russian settlement of Barentsburg where coal is still mined. Even the climb up the 265 odd steps to the local hotel to partake of a typical Russian lunch did little to warm us up!

A suggestion for your next dinner party - you take black bread and pour boiling water on it. Add some sugar and lemon and leave it for a week. Filter away the bread and enjoy the liquid, if you can! The whiskey-on-the-rocks we drank at the foot of the nearby glacier using 10,000 year old ice was a distinct improvement!

Optional tour activities included glacier walking, fossil hunting, kayaking and helicopter flights, the last one being my choice. It was truly fascinating hovering over a glacier, peering down into the rugged, deep,

blue/green crevasses and shooting off photo after photo. A piece of interesting trivia. Longyearbyen has the northernmost golf course in the world. Fine to play on in summer but in winter, with 24 hour darkness and snow on the ground, the golfers have adopted an orange ball and wear miners' lights strapped to their heads to see where the ball went. Different!

On the Sunday night we had a Banquet at the hotel, the menu including Arctic char, reindeer meat and cranberry parfait. A few of the Nordic YLs wore colourful traditional costumes and the large Japanese contingent sang to us. They had only had a couple of practices, one being on the airport tarmac before boarding the plane for Svalbard. Someone seeing them there thought they must be some strange sect performing incantations before taking to the air! They did well.

The guest-of-honour was a Norwegian YL, Liv Arnesen who, in 1994, became the first woman to ski solo to the South Pole. I was honoured to be seated next to her at the Banquet and was fascinated by her tales of how she trained for this event.

Another prominent YL present in Longyearbyen whilst we were there was Professor Kirsty Duncan who was leading a research team hoping to unravel the secrets of the 1918 flu virus which killed some 20-40 million people world-wide. This project involved examining the graves of seven young miners whose bodies were buried below the permafrost and thus, hopefully, preserved.

Seven ALARA members attended the Meet: Christa DJ1TE, Sigrid DL3LG, Angelika GÖCCI, Ruth IT9ESZ, Unni LA6RHA, Carol WD8DQG and myself Gwen VK3DYL. I'm sure the rest were there in spirit. A big vote of thanks must go to the organising committee of Ruth LA6ZH, Turid



The seven ALARA members at the Svalbard Meet. Back row (l to r) Angelika GÖCCI, Carol WD8DQG, Ruth IT9ESZ, Gwen VK3DYL, Sigrid DL3LG. Front row (l to r) Unni LA6RHA, Christa DJ1TE.

LA9THA, Unni LA6RHA and Ingrid LA-SWL who all worked non-stop for two years to make this Svalbard Polar YL 98 Meeting such a wonderful success.

At the YL-Forum on the Friday afternoon, it was voted that the next International YL Meeting would be held in the year 2000 in New Zealand.

Another piece of trivia to finish off with: a Norwegian guy I met told me his grandfather's brother had gone to a party in Oslo one night and was not seen again for 25 years. When asked where he'd been, he replied "Australia". Anyone with Norwegian ancestors?

YL Meets for 2000

BYLARA had hoped to host a World Meet in 2000 but have not had enough response to make it a possibility. However, they are hoping to have a BYLARA Convention in 2000, perhaps in conjunction with the Leicester Rally, in September. Keep an eye and ear out for more information.

If my information is correct, ZL-Land could be the host country for the World YL MEET, instead. Stay tuned. Maybe there will be two places to aim at for your holidays!!

World YL Meet in 1999

Preparations and plans are well under way for the YL Meet on the "Queen Mary" for the weekend 31 July and 1 August 1999 (with a couple of days before and after also available at special rates). In case you are going overseas then and haven't yet included the "Queen" in your itinerary, the YL to contact is Martha KA6TYO.

222 Net


June VK4SJ tells me that there are more overseas YL stations to be heard each week. She has heard several Gs, and some of the European girls, too. Perhaps we had all better make the time to participate

An Apology

In the last ALARA column I mentioned that Kay GOKTC had become an SK. Fortunately for BYLARA, this was incorrect. It was Ernie G4SKT (OM to Kay) who passed away. Please accept this public apology for any pain or confusion the mistake may have caused. I hope Kay will accept the sympathy of all ALARA members in her loss.

Which One of These Are You?

Some members keep a club so strong
While others join just to belong,
Some dig right in, some serve with pride,
Some go along just for the ride.
Some volunteer to do their share,
While some lie back and just don't care;
Some do their best, some help, some make,
Some do nothing-only take



AWARDS

John Kelleher VK3DP
President, Awards Committee
4 Brook Crescent, Box Hill South, VIC 3108
Tel: 03 9889 8393

The ARRL Awards Committee has accepted a recommendation of the ARRL DX Advisory Committee to add the Temotu Province of the Solomon Islands to the DXCC list. The addition will be effective with contacts made beginning 2359 UTC on 31 March 1998 and after.

The DXCC Desk will accept QSL cards for Temotu Province (H40) beginning 1 October 1998.

Temotu Province includes the Santa Cruz, Reef, Duff and Vanikolo Island groups. They are located more than 356 kilometres from the main grouping of the Solomon Islands.

Further, and by the same process, the Marquesas Islands and Austral Islands have been added to the DXCC list. The additions will be effective with contacts made beginning 2359 UTC on 31 March 1998 and after. The DXCC Desk will accept QSL cards for both the Marquesas and the Austral Islands beginning 1 October 1998.

The total of DXCC countries (entities) is now 331, including P5 North Korea. The above information on new additions to the DXCC list was supplied through the efforts of Gwen VK3DYL.

ALARA Award

This award is issued by the Australian Ladies Amateur Radio Association, under the following conditions.

1. The award is available to licensed amateurs, and SWLs.
2. Contacts with members of ALARA since 30 June 1975 are valid.
3. No band or mode restrictions.
4. Contacts must be made from the same call area.
5. Requirements: VK/ZL - Contacts with 10 members in five Australian States; DX -

Some greet new members with a smile
And make their coming so worthwhile;
While some go on their merry way
With never a greeting or word to say.
Some help the club to grow and grow

Contacts with five members in four Australian States.

6. Stickers are available for each additional 10 (VK/ZL) or five (DX) members contacted. Special endorsements as to mode, etc are available.

7. Applicants must submit a complete log extract, certified by two other amateurs with all signatures appended. When an applicant is located in an isolated area with no possibility of obtaining proper verification, QSL cards are to be forwarded in lieu of a log extract.

8. The fee for the award is \$AUS3.00 or four IRCs and \$AUS1.00 for additional stickers.

9. The address for applications is: (Mrs) Jean Shaw, 10 Huntingsfield Drive, Hoppers Crossing, VIC 3029.

NZ - WARO Awards

General: Contacts may be made on any band, any mode, with the applicant's contacts all from the same QTH (except in the VHF section); but contacts via repeaters, and in WARO nets or contests are ineligible for these awards. QSLs are not required. Send log certified by one other licensed radio amateur to the Award Custodian with sufficient return postage for the award.

Main Award: ZL and VK stations work 12 WARO members resident in New Zealand; DX stations work six members. Contacts to date from 1 June 1969. Endorsement seals are available to ZL and VK stations for each additional 12 stations, DX stations six. Contacts with WARO DX members qualify for endorsements, but applications must contain at least three ZL contacts.

VHF Section: 10 VHF contacts with WARO members dating from 1 January 1979. WARO members and/or applicants may be home station, mobile or portable. Endorsements for each additional five.

SWL Section: ZL and VK list 20 contacts heard with WARO members, DX list 10, dating from 1 January 1979. List full log details with call signs of both stations concerned. Endorsements for each additional 10 (or five for DX) stations.

NZ WARO Century Award

1. Applications must contain full log details of contacts with 100 WARO members (DX members included) dating from 1 June 1987, and to be signed by one other licensed radio operator. ➡

When asked for help, they never say "NO"
Some drag, some pull, some don't, some do
Now take time to consider

Which one of these are you?

From BYLARA newsletter Sep 1998 ar

2 Contacts may be any mode, any band or mixed, and from any QTH, but each YL claimed must be a financial member of WARO at the time of the contact, and may be claimed once only.

3 Contacts made by repeaters, and in nets, will qualify, as will those made during WARO contests since 1 June 1990.

4. No QSLs required. Send list of full log details and \$NZ2.00 to WARO Award Custodian, Caroline Sarten ZL2JP, 212 Coronation Avenue, New Plymouth 4601, New Zealand.

YLRL Certificates

Basic Rules

1. Contacts made through repeater devices or any other power relay method cannot be used for any YLRL certificate confirmation.

2. All contacts must be made from the same country.

3. Do NOT send QSL cards to the custodian! Two other amateurs must sign the log to verify that the QSL cards are in the possession of the applicant.

4. No charge is made for a certificate, but sufficient postage for first class mail, or a stamped legal-size envelope must accompany the application to cover the cost of mailing the certificate.

5. For the order in which the contacts must be listed, please check the rules for each certificate.

6. All inquiries should be addressed to the appropriate custodian.

7. Decisions of the custodians regarding interpretations of the rules as here stated, or later amended, shall be final.

Worked All States YL (WAS-YL)

Available to all amateurs. Contact must be made with a duly licensed YL in each of the 50 states in the United States. The District of Columbia may be counted for Maryland. There are no time or band limitations.

The call used is immaterial, provided it is licensed to the applicant. In qualifying for this certificate, it is possible to work the same YL in each of the 50 states.

The list of contacts must be arranged alphabetically by State and must include the call letters, date, band, mode, RS(T) and the YL's first name.

The Certificate Custodian is: Marcie Stilwell KC7DAT, 1421 NE Rygg Ct, Poulsbo WA 98370, USA.

Worked All Continents YL (WAC-YL)

Available to any licensed amateur in the world. Two-way communication must be established on the amateur bands with the six continents, North America, South America, Europe, Africa, Asia, and Oceania (which

includes Australia and New Zealand). Any and all authorised Amateur Radio bands may be used. Cross-band contacts ARE permitted. Contacts may have been made over any period of time.

Contacts with all six continents must be made with duly licensed women operators. It is not necessary for each contact to be a different YL. The call used is immaterial provided it is licensed to the applicant.

Submit a list of claimed contacts, including the full name of the operator (alphabetically arranged by continent), her call sign, and the date of each contact. Custodian for this award is: Leanna Shaberly KB8RT, 2635 West Sunrise Drive, Phoenix AZ 85041, USA.

YL-DXCC

Available to any licensed amateur in the world. Two-way communication must be established on authorised Amateur bands with stations (fixed or mobile), operated by licensed YLs from 100 countries on the current ARRL list of countries.

Any band or mode (except cross-band contacts) may be used.

A verified list must be in the same order as the ARRL countries list, and not alphabetically in any other way. The log must show country worked, station worked, date, time, frequency, RS(T) reports and the YL's name.

Endorsements: After receiving the certificate, a silver sticker will be awarded for contacts with YLs in 25 additional DX countries. List requirements are the same as for the original application.

The custodian for this award is: Marty Silver NY4H, 3118 Eion Road, Raleigh NC 27608, USA.

YL Century Club (YLCC)

Available to all licensed radio amateurs. Two-way communication must be established on authorised Amateur bands with stations mobile or fixed, operated by 100 different licensed women Amateurs. The same YL using different call letters will NOT count. Any and all Amateur bands may be used.

Contacts with YLs anywhere in the world are recognised, provided only that confirmations clearly indicate the stations were operated by duly licensed women Amateur Radio operators.

List of claimed contacts, including the full name of the operator, must be alphabetically arranged by LAST name, and also include the call sign, date, band, mode, and RS(T) of each contact.

Endorsements: Confirmations of contacts accompanied by an alphabetical list, as described above, from stations operated by additional YLs may be submitted for credit each time 50 additional confirmations are available. Endorsements will be made to the

original certificate when application is approved. Gold stickers will be awarded to applicants who have worked their additional contacts from the same country; otherwise, silver stickers will be awarded.

Custodian for this award is: Lee Henderson KB6MXH, 857 Tamarack Lane, Sunnyvale CA 94086, USA.

DX - YL

Available to licensed YL operators only, for working 25 different licensed women operators outside your own country, on or after 1 April 1958. USA and possessions are counted as separate countries, as well as Alaska and Hawaii. Any and all amateur bands may be used.

Contacts do not have to be with 25 different countries, just 25 different DX YLs.

The call is immaterial, provided it is licensed to the applicant.

The log must show date, time, station worked, frequency, her report, your report, mode, her name and QTH and must be arranged alphabetically by her last name.

Endorsements: Stickers will be awarded for each 10 additional DX YLs, subject to the same confirmation rules as above.

Custodian for this award is: Phyllis Davis KA1JC, 5282 Boyle Terrace, Ft Charlotte FL 33981, USA.

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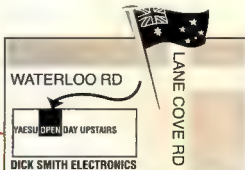
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Contests

Ian Godsill VK3DID

Federal Contests Co-ordinator
25 Monsoe Street, Mantone VIC 3194
E-mail: vk3did@vodafone.com.au

Contest Calendar November 1998 - January 1999

Nov 1	High Speed Club CW Contest	(Oct 98)
Nov 1-7	HA QRP Contest	(Oct 98)
Nov 7/8	WAE RTTY DX Contest	(Jul 98)
Nov 7/8	OK DX CW Contest	(Oct 98)
Nov 13-15	Japan International DX Contest (Phone)	
Nov 14	Spring VHF-UHF Field Day	(Oct 98)
Nov 21/22	CQ WW DX CW Contest	(Sep 98)
Nov 21/22	IARU Region 1 160 m Contest (CW)	(Oct/Nov 98)
Dec 4-6	ARRL 160 m Contest	(Nov 98)
Dec 12/13	ARRL 10 m Contest	(Nov 98)
Dec 19/20	Croatian CW Contest	
Dec 26/27	Stew Perry Top Band Distance Challenge	(Nov 98)
Dec 26 - Jan 27	Ross Hull VHF/UHF Contest	(Nov 98)
Dec 27	RAC Canada Winter Contest	
Dec 31	ARRL Straight Key Night	
Jan 9/10	Summer VHF/UHF Field Day Contest	(Dec 98)
Jan 9/10	HA DX CW Contest	
Jan 22-24	CQ WW 160 m DX Contest	

Space limitations do make it tight for publishing full details and results of all Contests. However, please consider looking on the Internet for details not published here. Sites to look at include <http://www.wia.org.au> and <http://www.uq.edu.au/radiosport>.

Thanks this month to ZL2BIL, ZL1BVK, VK4LAJ.

73 de Ian VK3DID

Results SARS Contest 1998

(posn/mode/call/score)

1	SSB	ZL1BVK	4256
2	SSB	VK2LEE	2809
3	SSB	VK3DID	672
1	CW	VK3DID	40

Results Waitakere Sprints 1998

(VK only)

Phone

Posn	Call	Score
1	VK5NJ*	57
2	VK4DZ*	53
3	VK4JAE*	43
4	VK5SR	40
5	VK2XT	39
6	VK7JGD	33
7	VK3DID	25
8	VK5XY	21
9	VK6NU	16
10	VK2LEE	14
11	VK4LUV	1

CW

1	VK5NJ*	23
2	VK2QF*	19
3	VK3DID*	17

Combined Phone + CW

2	VK5NJ	160
11	VK3DID	84

Results 'Zip' Sprints 1998

(VK only)

Posn	Call	Total score
4	VK5NJ	90
10	VK3DID	36

ARRL 160 m DX CW Contest

4-6 December, 2200z Fri - 1600z Sunday

Object is to work as many W/V/E stations on 160 m CW as possible (1830-1850 kHz is recommended for inter-continental QSOs).

Categories are: Single operator (QRP to 5 W; low power to 150 W; high power over 150 W a/p); multi-operator, single transmitter.

Exchange RST; W/V/E stations will add their ARRL/CRRL Section, /MM and /AM stations should add ITU region 1, 2 or 3 as applicable.

Score five points per QSO.

Multiplier is the total number of ARRL/CRRL sections, plus VE8/VY1 worked (max 77).

Final Score is total QSO points by multiplier.

Send logs not later than 4 January 1999 by mail to: ARRL Contest Branch, 225 Main Street, Newington, Connecticut, CT06111, USA. Logs on DOS disk in ASCII format welcome. Logs may also go to the ARRL BBS at 203-665-0090, or via the Internet to contest@arrl.org.

Certificates will be awarded to the top-scoring station in each category, in each DXCC country (note that the use of non-amateur means of communication to solicit QSOs is not allowed).

ARRL 10 m Contest (CW/Phone)

0000z Sat - 2400z Sun, 12/13 December

Object is to work as many stations worldwide as possible on CW, Phone or Mixed. Maximum operating period is 36 hours, and listening time counts as operating time.

Categories: as for 160 m Contest (see above).

Sections: CW only; Phone only; mixed. **Send** RS(T), plus serial number; W/V/E will send RS(T), plus state or province. CW entrants should stay below 28.3 MHz and avoid beacon frequencies. Entrants in mixed mode section may work the same station once on CW and once on Phone.

Score two points per Phone QSO, four points per CW QSO and eight points for CW QSOs with US novice or technician stations signing /N or /T (28.1-28.3 MHz only).

Multipliers are the 50 US states, plus District of Columbia (DC), plus Canadian provinces (see below "Canada Winter Contest"), plus DXCC countries except US and Canada, plus ITU regions (/MM and /AM QSOs, only).

Multipliers are counted separately on each mode.

Final score is total QSO points multiplied by total multipliers.

Send logs as above (ARRL 160 m CW Contest) by 13 January. Include a dupe sheet for 500+ QSOs.

Stew Perry Top Band Distance Challenge (CW)

1500z Sat - 1500z Sun, 26/27 December

This is a major challenge to one's ability to copy weak signals through QRN.

Band is 160 m.

Exchange is a four-character grid square (see *Amateur Radio*, December 1996, p16 for details of how to work out your grid square). RST is optional, but if given MUST be accurate.

Points for each contact depend on the distance between the two stations, which is computed by taking the distance between the centres of the two grid squares. Claim a minimum of one point per QSO, and add one extra point for each 500 km distance. [Example: a station 1750 km away will count for four QSO points.]

No additional distance for long path is allowed. If you work a station that does not know its grid square, you may claim only one point for the QSO [CT, NA and TR software will support this contest, including QSO point calculations.]

Final score is the total number of QSO points. There are no country or grid square multipliers. Stations using five to 100 watts output multiply their score by two, and stations using less than five watts multiply by four.

Send logs postmarked by 27 January to: BARC, PO Box 1357, Boring, OR 97009, USA. Logs on disc in ASCII format are welcome; or logs may be e-mailed to tbdc@contesting.com. Logs will be checked using computer techniques to detect faulty call signs, exchanges and not-in-log QSOs. "Busted" QSOs will be removed from both logs. Unique percentages will be reported in the results. Judges' decisions are final.

Region 1 160 m Contest (CW)

21/22 November, 1400z Sat - 0800z Sun

Please note the change of date and address for logs to: Ari Korhonen OH1EH, Kreetalankatu 9 as 1, 29200 Harjavalta, Finland.

Ross Hull VHF-UHF Contest 1998 - 1999

John Martin VK3KWA, Contest Manager

It is almost time for another Ross Hull Contest. The rules will be similar to last year's, but with two changes.

First, the six metre scoring. One of the aims of the scoring system is to keep the relative value of all bands reasonably equal. This is done with band multipliers, but six metres has an extra complication.

Sporadic E openings can provide large numbers of DX contacts which are as easy to make as local contacts. Last year's results show that a change is needed to make sure that scores are more consistent with the degree of difficulty of making the contact.

In the next contest, six metre scores will increase with distance up to 1000 km, and then drop back to one point for distances in sporadic E range (1000 - 2400 km). Assume that there will not be many tropo contacts over distances greater than 1000 km, and only a few short skip contacts below 1000 km. Any points lost on one side of the fence can be picked up on the other

Another issue has been the length of the contest. Many entrants are happy with the four week duration, but others are not. I would rather see more activity for as long as possible, but a month is a long time if you are working hard to get the best possible score.

Another factor is the drop in activity in the second half of the contest over the last few years. So, although I am reluctant to do it, I propose to make the next contest shorter and see what effect it has.

I would appreciate your comments on the rules, especially on the changes discussed above, either with your log or in the mail. Please note that I am not on the Internet, but any e-mails to the Contest Co-ordinator (see above) will be passed on.

Please get on the air during the contest and see how you go. You can still have plenty of fun and make some new friends on the air, or catch up with some old ones.

The Contest

The WIA maintains a perpetual trophy in honour of the late Ross Hull and his pioneering achievements in the VHF-UHF field, especially the discovery of VHF tropospheric propagation.

The name of each year's contest winner is engraved on the trophy, and he/she will also receive an attractive wall plaque and certificate.

Certificates may also be awarded to top scorers in the various divisions of the contest. The contest is open to all amateurs.

Duration. 0000z Saturday, 26 December 1998 to 2359z Sunday, 11 January 1999.

General Rules: Single operator only; one station call sign only. One contact per station per band per UTC day. Cross-band, repeater and satellite contacts are not permitted. Entrants should abide by the band plans and not make contest calls or exchanges on DX calling frequencies or below 50.150 MHz. A contest calling frequency of 150 on each band is suggested. All rulings of the contest manager will be accepted as final.

Exchange RS(T) plus serial number. Serial numbers need not be consecutive, but consecutive contacts must have different serial numbers.

Scoring: For 2 metres and above, one point per 100 km or part thereof (ie up to 99 km, one point; 100 - 199 km, two points; etc). For six metres only, contacts below 1000 km as above. Contacts over 1000 km and below 2400 km, one point; contacts of 2400 km or more, 10 points.

Multipliers are:

6 m 2 m 70 cm 23 cm 13 cm Higher
x 1 x 4 x 7 x 10 x 13 x 16

Awards: The overall winner will be the entrant with the highest all-band score. Awards will also be made to the top scorers in each of the following categories: 6 metres;

2 metres; 70 cm; 23 cm; 13 cm; 9 cm; and higher bands.

Penalties: Minor errors in distance estimates or score calculations will not incur any penalty. Repeated abuses of calling frequencies, or any contest operation below 50.150 MHz, will lead to disqualification.

Logs must contain the following for each contact:

- Date and UTC time.
- Station location (if operating portable).
- Frequency and call sign of station worked.
- Location or Maidenhead locator of station worked (if not QTHR).
- Reports and serial numbers sent and received.
- Estimated distance worked and points claimed.

Separate scoring columns, or separate logs, for each band would be helpful. The contest manager reserves the right to correct distance estimates on the basis of computer calculation.

Logs must be supplied with a cover sheet containing:

- Operator's call sign, name and address.
- Station location (if different from the postal address).
- A scoring table set out as the example below
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Send logs by Monday, 2 February 1999 (early logs would be appreciated) to: WIA Ross Hull Contest Manager, PO Box 2175, Caulfield Junction, VIC 3161.

Sample Scoring Table

Band	6	2 m	70 cm	etc
Score	xxx	xxx	xxx	xxx
Band				
Multiplier	x 1	x 4	x 7	x x
Total	xxx + xxx	xxx + xxx	= xxxxx (GRAND TOTAL)	

Note on Calculating Distances

Absolute accuracy is not required. All you need to know is whether the other station is above or below the nearest multiple of 100 km.

An easy method is to use a compass to draw 100 km circles around your location on a map. Better estimates can be made from six-digit Maidenhead locators, using a simple computer program published in December 1996 *Amateur Radio*.

A more accurate and fully error-trapped program is available, which also includes calculation of bearings and conversion between latitude/longitude and Maidenhead locators. It is available in IBM format only from John Martin VK3KWA (QTHR), if you send a floppy disc (any format) in a mailing box, together with return postage. **ar**

How's DX?

Stephen Pall VK2PS
PO Box 93, Dural NSW 2158

Geomagnetic disturbances are not equally likely at all times of the year. Those who listen to the daily propagation reports are very much aware of the variation of the frequency of geomagnetic storms. The occurrence of disturbances at major storm levels is most likely near the equinoxes (21 March and 21 September), and statistically March/April and September/October are the months when these occur.

If one believes what one reads in the newspapers, then there are even worse times to come. A small article appeared in the *Sydney Morning Herald* on 17 September 1998, written by Julie Robotham and titled "Lights and Action: Sun a Magnetic Performer". Here is the text for your information:

"Red lights in the sky, satellites veering off course, electricity grids sputtering and dying. It sounds apocalyptic, and in a way it is. The Sun is building up to something big: in three years its magnetic poles will reverse. Its south will become north and vice versa."

"The cosmic somersault may have all kinds of consequences on Earth, including the appearance of Aurora Australis, or Southern Lights, which have been visible recently from Canberra and the South Coast."

"Australian Geological Survey Organisation chief scientist Dr Phil McFadden said Aurora Australis contained "beautiful pastel reds, blues and greens"

"Sydneyiders are unlikely to see much of the aurora thanks to the saturation of city lights and the city's more northern position. This might change as the sun's magnetic activity starts to peak. This will happen months before its actual polar inversion which occurs in 22-year cycles"

"Spots of magnetic intensity on its surface will intensify further, sending out solar flares - "a vast dumping of charged particles in space", said Dr McFadden."

"This interacted with magnetic fields on Earth, resulting in magnetic storms. These caused auroras and could send communications haywire in places closer to the poles such as northern Canada."

All fascinating stuff. If I remember correctly, the Victorian gas explosion at Longford occurred at about 1230 pm local time (0230 UTC) on Friday, 25 September 1998. What caused it? Nobody knows! However, it is known that a geomagnetic disturbance was reported around that time, at major storm level. Any connection? Who knows? The mystery deepens. . .

Rowley Shoals VK9 - 99

Preparations are well in progress by Malcolm VK6LC and his group for a major IOTA DXpedition to Rowley Shoals in the Indian Ocean (see *Amateur Radio* June 1998).

Rowley Shoals are located approximately 300 km due west of Broome (population approximately 11,000) in the tropical far north of Western Australia. The shoals consists of three atolls that lie north-south. The most northern is Mermaid Reef, 29 km to the centre is Clerke Reef and 42 km to the south is Imperieuse Reef (17° 35' S and 118° 55' E) which is the destination point of the DXpedition.

Imperieuse Reef has the only Automatic Light and Weather Station for this group and is approximately 18 km long and 10 km wide. Within the reef the only semi-permanent land maintained above the high water mark is Cunningham Island, situated about 379 km west of Broome. The island is a longitudinal sand cay approximately 800 metres long and 250 metres wide, positioned at the northern tip of the reef where the automatic light and weather station is located.

The expedition's on-shore base will be at Broome from where the planned departure of the expeditioners will take place in about

How's DX? Columnist Needed!

It is with deep regret we advise that Stephen Pall VK2PS, who started contributing to the *How's DX?* column in 1982, and took over the column in 1989, has announced his inability to continue with the column after the December 1998 issue of *Amateur Radio* magazine. Fortunately, however, Stephen's changed circumstances will allow him to continue to contribute articles to *Amateur Radio* about DX subjects from time to time.

Are you a keen and active DXer (preferably with packet and Internet facilities, although these are not essential requirements), who would like to assist *Amateur Radio* magazine, the WIA, and other DXers by compiling the *How's DX?* column for *Amateur Radio* magazine each month?

If so, *Amateur Radio* and/or Stephen Pall VK2PS are very keen to hear from you as soon as possible. If you would like to help but have concerns about writing the column, please talk to us!

It would be very disappointing if even one issue of *Amateur Radio* was published without the *How's DX* column!

10 months time from 20 until 26 September 1999. The sea voyage will last about 14 to 16 hours, depending on weather conditions, on a commercial marine charter boat which



Imperieuse Reef, looking north west inside the reef at high tide. [Photo courtesy of the Department of Conservation and Land Management, the managers of the area.]

is 16.85 metres long with a cruise speed of 22 knots.

The boat comes with a friendly price tag of \$AU13,000 for six days. The expedition arranged a share charter to reduce the overall up-front costs. The boat has a crew of three, can accommodate up to 10 passengers and will carry approximately 2000 kg of DXpedition equipment.

A special Government scientific permit has been obtained to carry out amateur radio experiments and Malcolm has thanked the Australian Communications Authority, in the name of the expedition members, for the assistance in securing a special VK9 callsign for the activity.

The expedition intends to operate dual Yesu stations with amplifiers, using a variety of VK6LC designed phased verticals on 20 and 40 metres, a Butternut multi-band vertical, and log periodic Yagis for 15 and 10 metres.

The members of the multinational team are K9PPY Jim, CT1EEN Sam, VK2PS Steve and VK6LC Mal, the team organiser and manager.

On-shore support will be provided by Dave VK6DLB and Michael VK6BHY. All the

international guest operators are experienced IOTA DXpeditioners.

It is proposed to have a 24 hours operational schedule with dual stations on 10, 15, 20, 40 and 75 metres both in the SSB and CW mode.

Direct QSLing (include return postage) will be handled by Gianni I1HYW, PO Box 1, 10060 Pancalieri, Torino, Italy. There is a Web page on the Internet from which further information can be obtained, http://www-dx.deis.unibo.it/itdx/iota/vk9_99.html.

This will be the most ambitious IOTA expedition organised by Mal VK6LC to an Australian island group, which has never been activated before and where the general public has no access at all. Costing of the expedition's budget is not yet finalised but the final figure will run into many thousands of dollars.

Major sponsors of the expedition are the Italian Diamond DX-Club, the RSGB IOTA Committee, and ATN Antennas (Australia).

Naturally, financing such an undertaking is not an easy task. The expedition members have already made substantial contributions to the cause, as boat charter contracts had to be signed a year in advance and pre-departure accommodation had to be secured also.

Broome is a popular holiday resort in the month of September when the big game fishing is in full swing and the big game fishing boats are fully booked out.

The expedition is appealing to DXers, especially to those who support the IOTA program, for cash donations of any size.

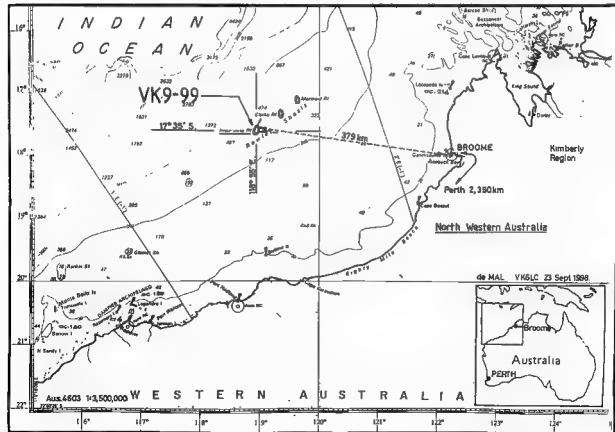
A special DXpedition bank account has been established to which donations can be made through the bank transfer system. Details of the account are; VK9-99, Malcolm K Johnson, Commonwealth Bank of Australia, 187 High Road, Riverton Western Australia 6148, account No 76 6164 5005591.

If you are able to assist, please do so, and drop a line of encouragement to Malcolm whose address is Malcolm K Johnson, 9 Abinger Road, Lynwood, Western Australia 6147.

St Peter and St Paul Rocks - IYO

The "Natal DX Group" have announced that they will be active from these Rocks in the first week of March 1999, with four operators.

They plan to leave Natal, Brazil, in the last week of February with the operations to



A map showing the location of the Rowley Shoals, site of the proposed VK9-99 IOTA DXpedition in September 1999.

commence four days later. The activity will last 12 days or two full weekends.

All bands and modes will be activated. The callsigns will be ZY0SB for SSB/RTTY (QSL via PS7KM), and ZY0SZ (QSL via PT7AA) for CW. The total budget will be \$US11,000, with 70% allocated for boat rental. It is reported that the Brazilian Navy and Brazilian Institute for the Environment are going to restrict future access to the islands.

Australian Antarctica - VK0TS

When you read these lines, Tom, who in 1997 spent one year on Macquarie Island, will be on board ship en-route to his new assignment at Davis base, Australian Antarctica.

The departure for "Voyage 4", the main change-over voyage for Australia's Antarctica bases was 29 October and it will take about two weeks, hopefully most of it smooth sailing.

Tom decided to keep his VK0TS call for his activity from Davis, which he thinks will not start before 1999 due to the busy summer

season.

Before departure, Tom underwent several training courses in frame relay installation, photocopier and fax maintenance, computer training, first aid training, PABX system handling, fire fighting, adventure training and last, but not least, two weeks anaesthetist training in case a medical emergency arises.

Marquesas and Austral Islands Added to DXCC List

The ARRL Awards Committee has accepted a recommendation of the ARRL DX Advisory Committee to add Marquesas Island and the Austral Islands to the DXCC List.

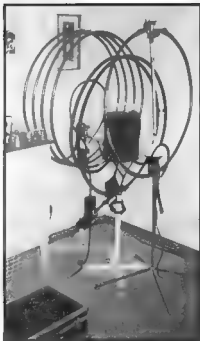
The additions will be effective with contacts made beginning from 2359 UTC on 31 March 1998. The DXCC Desk will accept QSL cards for both the Marquesas and the Austral Islands beginning 1 October 1998.

Indoor Antennas in Apartments

Many a DXer who, due to a change of circumstances, has to move into an apartment building (home unit in common parlance) gives up the hobby because he/she is not allowed to erect HF antennas.

Mike VK6HD had a CW QSO with Ulf DJ5QY on 160 metres, and he gave Ulf a 3/5-5-9 report due to QRM. Mike was surprised to discover that Ulf has worked Europe, North America, Asia and Africa, and now Australia, on 160 metres from an apartment building with an indoor four turn loop antenna and 50 watts.

The photograph shows DJ5QY's indoor "antenna farm". Four turns on 160 m, two



The indoor loop antennas of Ulf DJ5QY.

turns on 80-30 m, and one turn on 20-10 m. The antennas are used in the corner of his bedroom (one at the time) one metre distance from the neighbour's wall; the calculated efficiency level is less than 5%.

I had a similar experience in September this year. I had a 20 m CW contact with Ernest DJ6TR. I gave him a 449 report and received from him a 569 report. Within two weeks a direct card arrived from Ernest on which he informed me that he lives in an apartment, three metres above the ground and uses a magnetic loop indoor antenna with 80 watts input. So, there is still hope for those DXers in changed circumstances who are determined to continue DXing.

Future DX Activity

* **Monaco - 3A.** Luc 1Y1RL will be active from Monaco in November as 3A/1Y1RL.

* **Pakistan - AP.** Nasir AP2NK is active on 20 m CW around 0130 - 0300 UTC at the bottom (14010-14030 kHz) of the band.

* **Morocco - CN.** Ben DL6FBL will be active between 25-29 November in the CQ WW CW Contest as CN8MC or as CN2Z. QSL via home call via the Bureau.

* **Korea - HL.** Special event stations D98WCX and 6K98WCX will be active until 10 November. QSL via the Korean QSL Bureau or direct to HL5FOP, PO Box 97, Kyongju, 780-600, Korea.

* **Singapore - 9V8.** Special event station 9V8SEA will be active between 13-15 November during the "SEANET 98" convention.

* **Mayotte - FH.** Bruno TK5PB will be on the air as FH/TK5PB from 12-25 November on SSB. QSL via home address: Bruno Padey, Le Magenta 1, F-20196, Bonifacio, France.

* **Vietnam - 3W.** Special event station XV300SI is on the air until 31 December to commemorate the 300th anniversary of Ho Chi Minh (Saigon) city.

* **South Africa - ZS75.** The "South African Corps of Signals" will be celebrating their 75th Anniversary in November. ZS75SI is active during November to celebrate the event. QSLs direct only, with "one green stamp" or two IRCs, to Edwin Musto ZS5BBO, PO Box 211032, Bluff, 4036, South Africa.

* **Togo - 5V.** Roger G3SXW reports that eleven operators will activate 5V7A in the CQ WW CW contest between 28 and 29 November. Seven one kilowatt stations and 17 antennas will be used.

QSLs via the Bureau via GM4FDM, or direct to Tom Wylie GM4FDM, 3 King's Crescent, Elderslie, Renfrewshire, PA5 9AD, Scotland.

* **Barbados - 8P.** John K4BAI will be on the air from Barbados between 24 November and 1 December as 8P9HT. During the CQ WW CW contest he will be operating as 8P4Z. QSL via John T Laney III K4BAI, PO Box 421, Columbus, Georgia, 31902-0421, USA.

* **Sri Lanka - 4S.** Mario HB9BRM is now on the air as 4S7BRG. QSL via home call.

* **Jersey - GJ.** Chris G0WFFH will be on air from 4 to 11 November as GJ0WFFH. QSL via home call.

Interesting QSOs and QSL Information

* **ZA0IS - Jovan - 14269 - SSB - 0545 - Sep.** QSL via Arben Goxhaj ZA1K, PO Box 1, Westbrook, MN-56183 USA.

* **4S7DF - Damnika - 14172 - SSB 1199 - Sep.** QSL via the Bureau.

* **HK135P - Luis - 14229 - SSB - 0606 - Sep.** QSL via HK6LRP via the Bureau.

* **CX3AL - Leo - 14192 - SSB - 0711 - Sep.** QSL via Leonardo Correa Gordiola, Juan Ortiz 3276, Montevideo, or via the QSL Bureau.

* **FW5XX - Marcel - 14195 - SSB - 0649 - Sep.** QSL via ON4QM Marcel Dehonin, Everstraat 1230, Sint Stevens, Woluwe, B-1932 Belgium.

* **0A4FO - Alfonso - 14164 - SSB - 0520 - Sep.** QSL via Alfonso J Alvarez Calderon, PO Box 538, Lima, Peru, South America.

* **TF3GC - Halldur - 14226 - SSB - 1203 - Sep.** QSL via Halldur Christensen, MOA Flat 8, IS-210, Gardabær, Iceland.

* **PJ7SA - Samuel - 14164 - SSB - 0520 - Sep.** QSL via PO Box 366, Phillipsburg, Sint Maarten, Nederland Antilles, Caribbean.

- * **CU3AD** - Joe - 14240 - SSB - 1052 - Sep. QSL via the Bureau.
- * **5R8FU** - Ake - 14188 - SSB - Sep. QSL via SM0DJ Jan Hallenborg, Sirius 106, S-19555 Mersta, Sweden.
- * **5WISA** - Atsu - 10103 - CW - 0623 - Sep. QSL via JH7OHF.
- * **VK9LNQ** - Toshi - 1828 - CW - 1205 - Sep. QSL via JM1KNQ.

From Here and There and Everywhere

* **Thailand**. Princess Sririndhorn, who is third in line to the Thai throne, has received her amateur licence with the call HS1D.

* **Nepal** - 9N. According to DX sources the following operators have been issued with new licences in Nepal: Khatri 9NIAB, Navin Mainali 9NIAC (previously 9NICW), Sunuwar 9NIAD, and Gourish Kharel 9NIAE.

* **QSL Manager**. Bill KIWY, PO Box 2644, Hartford, CT 06146, USA is QSL manager for the following DX stations: 5R8ET, ET3BT, G16YM, P29CC, S21J, TF7GX, TF8GX, UA0DC, UA0ZBK, UA0AOZ and ZL3KIM.

* **Tumen River Delta**. The South China Sea DX Team has activated, with the assistance of the Beijing DX Club BY1A, the special economic zone located in the Tumen River delta region which includes areas in Russia, China and DPR Korea. The call signs used were BT2HC and UE0LEZ. QSL BT2HC via KU9C, and UE0LEZ via UA0MF.

* **Libya** - 5A. Special event station 5A29 has celebrated the 29th anniversary of the "Revolution in Libya". QSL via 5A1A.

* **QSL Info**. John K4BAI is QSL manager for the following Barbados stations: 8P9HR, 8P9HT and 8P9Z.

Brian VK4LV reports that he received the following QSL cards, all within 2-5 weeks from posting: 3W6WE, KG4AU, C6ACN, D2BB and ZB2AZ.

* **TM0SEF** was a French special event station active from 3 to 17 October, celebrating the science week in France. QSL via F5FLQ.

* **QSL from the past** - VP8. Mike VK6HD reports that in 1977, 21 years ago, he worked VP8PL in the South Orkney islands. In 1988 he noticed that he had never received a QSL card for his CW contact. Searching for a QSL address he discovered that VP8PL became a silent key in 1982. After many years of further search, he found that G3LJK still has the old logs and cards for the VP8PL activity in South Orkney and South Georgia. Mike was very happy to receive the missing CW QSL card for his DXCC.

G3LJK indicated that if any VK needs a card from the VP8PL activity, and they are

in the log, he will be happy to oblige. His address is: Mike Puttick G3LJK, 21 Sandfield Crescent, Cowplain, Waterlooville, Hants PO8 8SQ, England.

* **Antarctica**. If you worked Dave KC4AAA at the American Scott Base, your QSL should go via NC6J.

* **Sao Tome and Principe** - S9. John VK2DEJ reported a QSO with Gary S92AT SSB on 20 metres. Gary works for the Voice of America station and his QSL manager is NJ2D.

* **Palestine** - ZC6. Dr Sami was heard working from the Gaza strip in September on 14243 kHz. QSL via K9JJR. Palestine is not recognised as a separate DXCC entity. The situation might change in May 1999, when it is envisaged that the country might regain full independence.

* **Brazilian IOTA Islands**. PQ1Q was active from Grande Island SA-029 QSL via PP5LL. PV2E was active from Santo Amaro island SA-071. QSL via PY2YW. PR2YL and PS2S were on the air from Comilla Island SA-024. QSL via PP5LL Jaime Lira do Valle, PO Box 88, Florianopolis, SC, 88010-970.

Eritrea - E3

It was reported that the local licence fee is \$500 per participant which will make the activity quite expensive.

* **Iraq** - YI. According to Pierre HB0AMO, who spent three months in Iraq and visited the Radio Club of Baghdad YI1RS in July 1998, there are about 30 Iraqi amateurs, but they are only allowed to operate from the Club station using their own call sign. The equipment is an old fixed frequency system and the Club is mainly active between 1200 - 1400 UTC on Fridays.

* **Cambodia** - XU. Mako XU7AAK is active on 20, 17 and 15 m, mostly on CW. QSL via JA10EM.

* **Qatar** - A7. Khalid A71EA was heard on 20 and 15 m, mostly on SSB, with a list operation. QSL via PO Box 20606, Doha, QATAR.

* **Johnston Island** - KH3. Alex KH6HE is active as KH3/KH6HE from the Club station on 14240 kHz, and other times on 28450 kHz. QSL via home call.

* **Navassa** - KPI. The NIV DXpedition hopes to receive their landing permission soon for a November/December activity.

* **Comoros** - D68. Herman DJ2BW will be on the air from 26 October to 7 November as D68BW QSL via home call.

* **Sao Tome & Principe** - S9. Two Swiss amateurs, Chris HB9CYV (S92YV) and Martin HB9CYN (S92YN), will be active from 26 October to 7 November.

* **Tokelau** - ZK3. Ron ZL1AMO will be on the air from around 18 October for 3-4 weeks, probably as ZK3RW. QSL direct only to ZL1AMO.

* **Rodriguez Island** - 3B9. This activity, according to Frank Smith AH0W, has been postponed to a later date, so as not to clash with the ZL9 Campbell Island expedition which was planned earlier to take place in January 1999.

* **Eastern Kiribati** - T32. Chuck T32NCC is an active station on Fanning Island with a TS-50 and an old car battery which is charged by solar cells. He was heard on 12 and 10 m around 0200 - 0300 UTC. Mail takes about seven months to reach the island.

* **Pratas** - BV9. It has been indicated that this activity might take place in October. The latest report says that there is no further progress, "but the possibility is still alive".

* **Niger** - 5U. Dan K4SET has now received his proper call, 5U7DG. Previously he was issued with the irregular call of 5UDAN by mistake. Dan uses a long-wire antenna at present but hopes to have a TH6 up soon.

* **Eritrea** - E3. A new DX group, called Space A DX Group, is planning to be active from here early in November with 20 operators from 10 different countries. It was reported that the local licence fee is \$500 per participant which will make the activity quite expensive. QSLing will be handled by INDEXA c/o K4JJD.

QSLs Received

XW1 (11 m - JH1AJT); HR1LW (6 w - JA1LW); TG9GJG (2 m - Julio Gonzales, PO Box 24, Corro, Central Guatemala City, Guatemala); RA2FBC (12 m - DF4BV); FTSXN (3 m - F6PEN); 9U5CW (2 m - EA1FFC).

Thank You

Many thanks to all who supplied me with news and other information which I appreciate very much. Special thanks to VK2DEJ, VK2EFY, VK2KCP, VK2KFU, VK2TJF, VK2XH, VK4LV, L40370, VK6LC, VK6HD, VK0TS, LU1YU, ARRL DX News Release, International DX Association (INDEXA), OHIO/PENN DX Bulletin, QZ DX, The 425 DX News, The DX Newsletter, The DX News Magazine, The Sydney Morning Herald, and the DX Magazine.

Spotlight on SWLing

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Pounding Brass

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Radio Norway International

Recently, Radio Norway International reluctantly announced that they were suspending their English language programming. This was only heard at weekends but now has been permanently deleted from their output. The reason was funding difficulties.

Of course the station is continuing to broadcast in Norwegian as well as relaying Radio Denmark from Copenhagen. It is a pity that these short English bulletins have disappeared. We hope they will be restored.

Radio Netherlands

At the end of October, many, if not most international broadcasters, made significant alterations to their schedules. This was in line with most of the Northern hemisphere reverting to standard time.

One significant change has been the decision of Radio Netherlands to alter the time of their English programming directed to audiences in the Pacific. Previously they were on between 0730 and 0925 UTC. Now they will be combining the Bonaire and Russian relays to broadcast from 0930 and 1125 UTC, but no frequency information is available to me at the moment.

I do think, however, that they will keep to their usual channels with the Russian relays possibly being on either the 41 or 49 metre band. It seems very strange, as listeners in New Zealand will be tuning in from 2230 to 0025 NZ Summer time while listeners elsewhere in the Pacific will be sleeping.

Radio Saint-Helena

Radio Saint-Helena in the South Atlantic was scheduled to air their irregular semi-annual broadcast on 24 October. As I am writing this column before their scheduled broadcast, I cannot comment. However, I will let you know how it turned out.

In previous years I have found it extremely difficult to copy their signals. 11092.5 kHz

Gravity Cells

Lately, I've received a number of requests from readers in relation to 'Gravity Cells'. Instead of writing to you individually, I thought it would be better to write about them in this column, as other readers may have a similar interest.

It is known that when dissimilar metal plates are partly immersed in a liquid (for instance, diluted sulphuric acid), a voltage appears between them. The extent and nature of this electrification varies with different metals, some metal pairs giving more voltage than others.

What follows is based on telegraphy handbooks of the late 1880s era.

One of the commonest types of cell used was the Callaud or Gravity cell. This Gravity cell consists of copper and zinc plates, with copper on the bottom (the positive pole), and zinc at the top (the negative pole).

is their usual frequency and a disused USB feeder, harking back to the days of Cable and Wireless, is taken out of mothballs.

Maritime HF Still Viable

The first of February next year should see many HF Marine radio stations stop employing international Morse. The reality is that it will continue through some senders because some ships will still be relying on CW, particularly in Asian and African regions where stations have not installed SITOR or Clover.

HF is still viable because the cost of satellite communications remains prohibitive. There are regions where INMARSAT does not service the maritime industry. However, the new Iridium satellites will provide worldwide coverage, allowing anybody to communicate in identical fashion to existing mobile telephones. At present, the rates on Iridium phones are still very expensive so I would expect maritime users will continue to patronise the existing HF stations.

The copper plate is in a solution formed by dissolving bluestone crystals or blue vitriol in water. Bluestone is commonly known as copper sulphate. The zinc plate is immersed in water but a solution of sulphate of zinc forms around the zinc plate.

The Gravity battery is usually set up in glass cells about 6" in diameter by 8" in height. As mentioned above, the copper plate sits in the bottom and the zinc plate is suspended by a wire hanger from the rim of the cell. An insulated copper wire is connected to the copper plate forming one of the terminals, zinc being the other.

The zinc plate is called the "Crow Foot" although, personally, I think it looks nothing like the foot of a bird. Bluestone crystals are placed in the bottom of the cell; the amount depends upon the work required by the battery, being about 3 lbs for local stations. Water is poured into the container to cover the zinc plate. The bluestone dissolves quite rapidly in the bottom of the cell. Occasionally star shaped zinc plates were used but were not in as wide spread use as the crow feet types.

The battery will develop full strength in about two days. This time may be reduced considerably by short-circuiting the battery terminals.

Owing to the respective specific gravities of the two solutions, they do not speedily mix. Sulphate of copper, being the heavier of the two solutions, remains at the bottom of the container, hence its name 'Gravity Cell'.

The solutions will eventually mingle unless the load on the cell is sufficient to use up the

(continued on page 45)

One well known Marine HF station, that has been operational since the early days of radio, is Fortishead. Originally located in the western part of England, the senders are strategically placed around the UK.

The operators now want to phase this facility out, preferring existing users to switch over to other modes such as Satcomm, although some channels will be retained for maritime safety and meteorological bulletins.

Globe Wireless

The American Marine Communications company, Globe Wireless, has been steadily acquiring various HF facilities throughout the world.

Now they have purchased a Philippines coastal HF station, which brings to 19 their world-wide chain of HF stations. This includes Perth Radio, VIP, which is still operational.

Well, that is all for this month. I hope that your listening will be productive.

Intruder Watch

Gordon Loveday VK4KAL

Editorial Intruder Watch Columnist

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Some clarification of Primary and Secondary intrusions seem to be in order.

Primary Intruders are those who are permanently in the Amateur bands, eg 14126.5, 3 kHz, three channel, 144 baud, 235 Hz shift, and the like.

Secondary Intruders are those who appear regularly in the Amateur band, but are not apparent on a daily basis.

By this newer method of observations, the system concentrates on fewer intruders, resulting in a more positive identification. It is far easier to check on a smaller number of frequencies.

This method is being evaluated by Ron Roden, Co-ordinator of Region 1 with a view

to possible implementation. All Region 3 Co-ordinators are being encouraged to try this approach.

It seems that the WIA has another "first". From what I can gather, no other country issues Certificates for observers in the Monitoring System. In Australia, observers have been presented with a "Certificate of Merit". The first issue was in 1985 to Col VK4AKX.

Initially, only one certificate was issued to any Amateur or Short Wave Listener who regularly and consistently supplied reports to the Intruder Watch Service.

In 1992 we decided to award the certificate yearly on the same basis. Unfortunately, only four were issued in that year. It seems that the supply ran out. I am currently awaiting a reply from our organisation as to the

possibility of continuing this award.

I appreciate that observers spend much time on listening, and rewards are few. This, I suspect, is the main objection in recruiting Co-ordinators and voluntary observers.

However, I fail to understand the apathy of so many amateurs, who refuse to assist in combating the constant erosion of our frequency bands.

In conclusion, my time as Federal Intruder Watch Co-ordinator is drawing to a close. I am to retire when my 20 year time slot arrives, which will be before the next Conference. This should give sufficient time to find my successor.

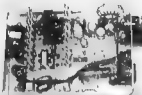
Any takers? It will also bring up my 43 years with an Amateur Licence.

Please note my new packet address of VK4KAL@VK4JEM-1.

ar

Intruder Watch Summary for September

FREQ	UTT	EMM	DETAILS
3.560	1102	A3E	R Korea, ID, M&F announcers
7.039.5	1010>	A1A	SLBCN "F" Ch marker, CIS
7.100	0600	N0N	UICAR. I need an ident if possible
14.126.5	daily	F7B	UIMUX, 235 Hz, 144 bd, 3 ch M/plex 930 Hz offset to neighbouring channel
14.211.5	1100	F1B	UUVFT, 850 Hz, 100 bd.
14.240	0550>	my	NON, F1B, R7B, 3 kHz wide
28.650	0030>	A3E	R Habana [?] H3 9550??



radio an Communications

Incorporating AMATEUR RADIO ACTION and CB ACTION

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ACP ACTION,
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Victoria 3168
(03) 9567 4200

You are looking at a photograph inspired by sheer genius. It's the insides of a 20amp power supply you may be able to build for as little as \$20, or perhaps even less. How? Simple. It started life as the power supply for an IBM-compatible personal computer. When the computer outlived its usefulness, its owner put it to very good use. Yours to build!

November's R&C should keep you reading until Christmas — but it won't have to, of course! Get into these...

- 2000 Olympic Games to "borrow" part of 70cm. The official ACA statement with WIA's comments.
- History of the hand-held. We turn back the clock to review old No. One — 58 years old and still goes!
- Review: Ranger RCI-2950 all-mode transceiver. The Sunspots are back — so is the DX! Try this out...
- Construction stories: build a simple six metre converter or a neat 20A switch-mode power supply.
- Retro review: The Barlow Wadley shortwave receiver. Boy, did this gadget set the tongues wagging!
- As usual, we have our three DX columns and lots more... the best stories and regulars every month!

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(PS. We also have the biggest collection of radio-oriented Classified adverts in the country. There's lots of them because they work so well. Ask your newsagent to keep a copy for you each month, or ring 1800 25 2515 for subscription details. Hurry — you might miss something!)

ARDF

Amateur Radio Direction Finding

Ron Graham VK4BRG

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It would be nice to see some Australian participation in this event.

Dates announced cover the time frame of 6 to 14 August.

ARDF and Kids

Previously, in this column, reference has been made to getting Scouts and Guides involved in ARDF. The Chinese introduce ARDF in some schools. I am now aware of families in two parts of Australia who have introduced ARDF type activities to their kids. One is in Canberra, the other in the Newcastle area. The latter, as I understand, is a group of three families with the OMs being Amateur friends. Maybe a good way to keep the kids amused while the OMs play at other aspects of Amateur Radio!

Discontinued Components

Philips, in their wisdom, have discontinued the BF-981 dual gate MOSFET. This device has been quite popular as an RF amplifier for Amateur VHF receivers, including ARDF type receivers.

I have spent considerable time searching for a suitable replacement and the only device reasonably available is a surface mount device (SMD). So, whether we like it or not, manufacturers will force those Amateurs who like to do some construction work, into having to handle these small SMDs.

Motorola is currently phasing out their MC3362 FM receiver chip. This chip has also been popular in ARDF receivers. The replacement chip, amongst other things, calls for a complete circuit board revision as its pin-outs are completely different from the MC3362.

I have recently had the opportunity to design and build a couple of VHF direction finding receivers using my chosen replacement components. This has provided an opportunity to gain some experience with those components. The receivers are crystal locked onto various VHF marine frequencies. There is an apparent requirement to be able to DF "locked on" transmitters, particularly on the distress and repeater input frequencies. Incidentally, a fairly large quantity of surface mount components has been used in these receivers.

Speaking of using SMDs, I have been using them for some time and now find them reasonably easy to handle. I initially went for the largest (common) size 1206 resistors and capacitors. Recently, I have changed (for a lot of applications) to the next smaller size, 0805. It's amazing, really, that the 1206 size components now appear "large" when I use them. By the way, these component sizes are in inches, the 1206 size being 0.12 of an inch long by 0.06 of an inch wide, which translates to 3.2 by 1.6 mm.

More About the Hungarian Event

This event, which I made reference to at the commencement of this column, is over and I have some reports from the US team manager. The main thing is that he was quite pleased with the team's results.

This is particularly important as this was their first exposure to an International event. He attended all the "working group" meetings and had these comments.

(a) Interestingly, the absence of Australia, New Zealand and Canada was noted! (I think the cost of competing in these International Events is, and will be in the future, an important factor regarding participation. The US team paid their own fares and the ARRL paid their entrance fees).

(b) There is a move to standardise the ARDF rules for the three IARU Regions.

(c) What I think to be the most significant is the outcome of the year 2000 world event. I gave already given some background regarding this event being offered to Australia. Apparently, our WIA was in late communication with the Region 1 Working Group and declined to organise the event for Australia. Reasons given were that no Club or Group was willing, they would be supporting VK2 with Olympic activities, their need to organise the IARU meeting in Australia that same year and that ARDF was not yet fully established in Australia.

China has agreed to host this event in the year 2000.

Also More About the Korean Event

Grant Willis VK5ZW1, the WIA IARU Co-ordinator, is acting as a temporary focal point for those interested in attending this event. The "temporary" is because Grant is filling in while our WIA fills the vacant position of ARDF Co-ordinator in Australia. Grants e-mail address is: gwillis@dove.net.au. There is a Web page describing the Korean event at <http://210.100.211.57/ardf/index.htm>.

Contributions Wanted

When I started this column, I tried to stress that it was to help promote ARDF/fox hunting in Australia and that contributions would be needed to provide sufficient material and interest to keep it going.

The column has been running for a year now and I am finding next to no spontaneous input. Please, if you are, or have been, involved in any interesting direction finding activities, write a few lines or a few paragraphs on your experiences. Possibilities could be comments on your Group's activities or proposed activity, involvement with JOTA, a technical description of some equipment, etc.

ARDF appears to be alive and well with the following International events scheduled. Some notes are used to explain points of interest, dates, etc. For those who are unaware, the International Amateur Radio Union (IARU), is divided into three Regions with Region 1 covering Europe and Africa, Region 2 covering North and South America, and Region 3 covering Asia and Oceania. So, this puts us, in Australia, in Region 3.

Year	Event	Country	Host	Notes
1996	IARU R1 ARDF Championship	Hungary	7	1
1999	IARU R1 ARDF Championship	Croatia	HRS	
1999	IARU R3 ARDF Championship	Korea	KARL	2
1999	IARU R2 / FRG-99	USA	APRLWS	3
2000	IARU World Championship	?		
2000	IARU R1 ARDF Championship	France	REF	

1. This event was held in early September and is interesting as the recently formed ARDF USA team will compete as visitors. The location of the year 2000 World event will also be decided in Hungary. My understanding is that it will definitely be held in Region 3. Australia has been suggested as it would allow the international competitors travelling long distances to combine their travel with the Olympics. Hopefully, there will be some news available for the next column.

2. Some Australians are expected to travel to Korea and compete in this event. Dates and schedule of events have recently been announced. It commences with a referees training course on 19 and 20 June in Seoul. Registration is on the 21st, the 2 metre competition on the 22nd, a day off (good for sightseeing, etc) on the 23rd, and the 80 metre competition on the 24th.

3. This is the Friendship Radio Sports Games (FRG-99) combined with the inaugural Region 2 IARU event to be held in Portland, Oregon. The FRG-99 event is unique as it provides a combination of foxhunting, HF operating and CW competitions (see October 1997 ARDF column for more details).

However, as the name implies, friendship and goodwill are the prime consideration.

Repeater Link

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10 kHz Spacing

The Illawarra Amateur Radio Club newsletter carried an article from Robert VK2MT on changing the 2 metre band plan for voice repeaters. In short, rather than the current 25 kHz spacing, go to 10 kHz spacing. The reasons for this were to allow for increased numbers of repeaters in those areas that are overcrowded and/or suffering from pager interference, and more options and more solutions to existing and future problems. The 10 kHz change could offer considerable benefits. Before you throw your hands up in disbelief read on.

The 10 kHz spacing idea is not as disruptive as you may at first think and is technically feasible. Many years ago the USA went through a similar process of going from 30 kHz spacing to 15 kHz spacing. Much debate was held and when the idea was tried it worked. However, 10 kHz spacing is just too close. Two repeaters located in the same area 10 kHz apart would interfere with one another. But that is not the intention. Two repeaters only 10 kHz apart would be many hundreds of kilometres apart.

Why 10 kHz?

Unlike the USA with their 30 kHz spacing, we use 25 kHz spacing and it is not practical to halve this figure to 12.5 kHz, as most modern radios don't offer 12.5 kHz stepping. 10 kHz spacing is not a problem from the users' radio point of view as 5 kHz and 10 kHz stepping is normal.

How Is It To Work?

It is simple enough to allocate extra channels at 10 kHz intervals and allow repeater clubs to choose from a wider selection of channels. There is a problem, however, with existing repeaters on frequencies ending in 025 and 075.

The channels under the 10 kHz idea end in 000, 010, 020, 030, 040, 050, 060, 070, 080, 090. Note the channels ending in 100, 150, etc don't have a problem. What is required of existing repeaters operating on the 025 and

075 frequencies is a need to change frequency. This is not as difficult as you may think. A repeater operating on, say, 146.025 only has to shift 5 kHz up or down.

Shifting

The need to shift frequency for some repeaters is an important point worth expanding on. Most repeaters under the 10 kHz proposal would not have to change frequency. All repeaters ending in 00 or 50 conform to the band plan. Only repeaters ending in 25 or 75 need to change up or down 5 kHz.

This 5 kHz shift is easily achieved by frequency tuning the Rx and Tx crystals in the repeater. It would be unusual not to be able to move a repeater's Rx and Tx up or down 5 kHz. If there is a problem going one way then the other direction could be tried. Once tested as to which way is the easiest, the new repeater channel is either 5 kHz up or down and the licence is changed. More on the licence change later.

There would be no need to tune the duplexer on the repeater as a 5 kHz shift is well within the design notch of duplexers. In

**If you have a
comment, or would like
your club or WIA
Division to comment,
please encourage them
to do so.**

short, to change a repeater that is on a 025 or 075 frequency is a simple 5 kHz frequency shift up or down. The 025 and 075 repeaters now conform to the 10 kHz band plan.

The User

What about the user who has a crystal locked transceiver on one or more of the 025 and 075 repeater frequencies? As described above, a slight retune of the Rx and Tx crystal frequencies is all that is required. Remember, it is only 5 kHz and most, if not all, radios can be frequency tuned this far.

In Use

The reason for this change in band plan is to allow greater frequency usage (more channels) and, most important, greater flexibility for the repeater club. With so many channels to choose from, interference and pager problems can be tackled with more options.

Frequency co-ordination becomes even more important, in that repeaters are not allocated 10 kHz spacing if they are within propagation distances. But more options means greater flexibility to make sure this

does not happen. If there is a mistake made and two repeaters within propagation distance end up 10 kHz apart, then one or both only have to shift 10 kHz up or down to resolve the problem. Even a 10 kHz shift should be within the range of most crystals.

Licensing

Licensing could be a cost to the amateur repeater that has to move up or down 5 kHz, as it is a change in the licence conditions. I don't know how the ACA would view this one but it may well attract a \$30 fee (Is it \$30? With so many changes over the last few years I forget what is current).

Comment

I'm in favour of the idea but what is now required is comment from repeaters users on the idea. What do you think, particularly those Repeater Managers who operate systems on the 025 or 075 frequencies?

For all other repeaters there is no change, so it has little immediate effect. In the long term it could result in too many voice repeaters too close together, unless good frequency co-ordination is maintained.

If you have a comment, or would like your club or WIA Division to comment, please encourage them to do so. I'm willing to receive your thoughts and I can co-ordinate them for FTAC to consider. I have run the idea past John Martin (FTAC) and he expressed interest to hear from you.

By the way, without looking it up, who is your Divisional Technical Advisory Committee person (TAC)? If you don't know who this person is, find out and run the idea past him or her. Seek a response from this person or persons. It is their job that they have undertaken as a volunteer, so find out what their thoughts are.

Thanks to Robert McKnight VK2MT who thought up the idea. Good one, Robert!

Accurate?

Just how accurate are the repeater lists (and broadcast lists) you see in the WIA Call Book and other publications? Over the past couple of years I have put some time into correcting and bringing up-to-date this list for VK6. The number of errors, old information, missing information and just plain wrong listing, is amazing.

One interesting error in *Amateur Radio* magazine under Broadcast Frequencies was a VK6 WIA Broadcast on 29.680 MHz. This entry had been in the magazine for many years. There had never been a broadcast on this frequency, ever! Over the last year or so, 29.120 MHz FM has carried the VK6 news. How do these errors occur and how do they go on so long without someone noticing or commenting? ⇨

One type of error that I found common was repeaters listed that had never been. A person or club intended to put a repeater on air, and in some instances even obtained a licence, but the repeater never made it. If there was a licence it lapsed and many years down the track this repeater, that never was, continued to be listed as either operational or proposed.

I found that about a third of the repeater listings in VK6 were incorrect in some way or another. Mostly these repeaters had never been or had ceased operation, or were on air little of the time. Some repeaters go off air for a year or two and then re-appear for a few months only to go off air again. What is the point of having listed repeaters that are not on air? This list is meant to be for users to know what repeaters are operational.

I wonder how accurate your State's repeater lists are? A comment from John Martin (FTAC) is that some Divisions have not responded with information on their repeaters in several years. Either there are no changes or someone is not doing the job of keeping the list up to date. There is a third possibility and that is no one knows whose job it is to keep the list up to date and make it available to publications, like the WIA Call Book.

Find out from your Division whose job it is to keep this information up to date and available.

Climbing Towers

Our repeater club in VK6 has experienced increasing difficulty in obtaining unrestricted access to some of its sites. Site owners are becoming more aware of safety issues, and the possibility of legal action being taken against them in the event of an accident.

This problem has been ongoing for over two years now and our repeater club (WARG) has been in constant contact with the appropriate authorities. It has been a very slow process with numerous letters and phone calls to ask what is happening. The most common response is "sorry your letter was inadvertently misplaced but we are attending to it as a matter of urgency". At long last a response has been received in writing.

WorkSafe WA Reply

"WorkSafe Western Australia has sought a legal opinion on the application of the Occupational Safety and Health Act 1984 to climbing and maintenance activities undertaken by unpaid volunteers on WARG owned masts and towers located on private land usually owned by a farmer.

The legal opinion the department has received confirms our view that an operator or owner of a farm does not incur responsibilities under either the Occupational Safety and Health Act or Regulations to "volunteers" when they are actually engaged in the

activities of climbing or maintaining masts or towers erected on farmer's land.

The owner or operator of the farm does not have any control over the masts or towers that are owned and maintained by WARG.

However, an owner or operator of a farm may incur responsibilities under section 21 of the Occupational Safety and Health Act to WARG volunteers where the volunteers may be affected by the farm work, for example when going to or from the mast/towers.

Section 21 of the Act requires employers and self-employed persons to, as far as practicable ensure work in which he or any of his employees is engaged does not harm a person who is not their employee. The responsibility of the farm owner or operator towards WARG volunteers is the same as that towards any person who may be affected by the farm work."

All Clear?

The letter says WARG can climb their towers on land owned by others without causing the owner a problem. The owner is not liable if an injury happens during the course of tower work. However, access to the site may be a problem due to the nature of the activity on the land.

I hope this last statement does not cause further delays as the owner can still be concerned due to access to the repeater site. However, at least we have a response from WorkSafe WA and we await reaction from the site owners. It is important to point out site owners are not being difficult but merely following the trend of keeping lawyers and Government departments working hard.

Computers UGH!

My articles about the joys and frustrations of computers received considerable comment with stones of similar anguish. Here are a couple of interesting computer messages that greet the user from time to time.

"Keyboard not working hit F1"

"Printer unable to print as printer is busy"

The first one speaks for itself and the second was a response from my computer when I tried to print a paper. My question to the computer was "busy doing what?" It was just sitting there doing nothing as far as I could determine. If in doubt, re-boot and the computer was no longer busy. Overall, is more time spent waiting for Windows to reload than the time computers save?

My latest computer problem is with my Epson 500 colour printer. It prints but every now and then says "printer off line" and misses chunks of what it is printing. So on it goes, you sort one problem out only to be faced with another. Must get around to Amateur Radio one day.

ar

AMSAT Australia

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AMSAT National Co-ordinator

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AMSAT Australia Net

The AMSAT Australia net is held on 80 and 40 metres LSB each Sunday evening. During daylight saving time in South Australia the net is on 7068 kHz +/- QRM with an official start time of 1000 UTC (with early check-ins at 0945 UTC). During the rest of the year, the net is on 3685 kHz +/- QRM with an official start time of 0900 UTC (with early check-ins at 0845 UTC).

AMSAT Australia Newsletter and Software Service

The newsletter is published monthly by Graham VK5AGR. Subscription is \$30 for Australia, \$35 for New Zealand, and \$40 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia

GPO Box 2141

Adelaide SA 5001

Keplerian Elements

Current keps are available from the Internet by accessing the AMSAT FTP site, <ftp.amsat.org> and following the sub-directories to "KEPS".

Spectacular Images from TM2AT

Some of the best images ever available to amateurs via an amateur radio satellite have been posted recently on the Internet by Chris Jackson

The final multi-spectral pictures have been produced by integrating separate images taken at differing wavelengths. This method is one that commercial Earth-imaging satellites like LANDSAT use to show up different vegetation types, or built-up populated areas, in their images. The resolution of the images is surprisingly good, particularly as they are JPEG compressed

down from 3.5 megabytes to about 500 kilobytes for transmission via the Internet.

Whilst JPEG format is wonderful for reducing file size in the least intrusive way, it nevertheless degrades the final image quality. Having seen the results as uploaded to the Surrey Website, one can only wonder at the quality of the originals. It is possible to see detail as fine as 100 metres or so and in one image of Seattle, Washington the two Mercer Island bridges are clearly visible. It certainly appears that the original images would rival commercial satellites for picture clarity.

The first pictures were produced by combining images taken in the red, green and near-infra-red parts of the spectrum. Covering an area of 100 x 100 km on the ground they result in pictures having a resolution of better than 100 metres per pixel.

The images have an overall reddish appearance. Red areas indicate healthy vegetation as chlorophyll strongly reflects near-infra-red light. Urban areas generally show up blue-grey. The different colours of fields provides an indication of the state of vegetation, bare soil, marsh, young or mature vegetation, etc.

I have been subscribing for some years to the European Space Agency publications, *Earth Observation Quarterly* and *Record of Images*. They contain some pretty spectacular images from commercial earth-imaging satellites. However, the first few pictures I downloaded from the TMSAT internet site were no disappointment, even judged against the commercial images.

They are a great incentive to tool up for 34,400 baud download capability. This speed should make it easy to download the original image files which can be over 3.5 megabytes in length. I urge you to look at these pictures at: <http://www.ee.surrey.ac.uk/EE/CSER/UOSAT/amateur/tmsat/index.html>.

I would also strongly urge users to consider making their stations ready for the 34,400 baud downlinks on the TMSAT spacecraft. We are very privileged as amateurs to have the opportunity to take part in these experiments. Detailed instructions of how to make the necessary changes are available from the Surrey Web site and, although they are a little daunting at present, I'm assured that more realistic ways of achieving good 34,400 baud downlink are under development. Watch this space for details as they come to hand or, for those with Internet access, keep abreast of the goings-on at the Surrey Web site.

Standby for Historic Broadcast

If the planned "Return to Space" by pioneer astronaut John Glenn becomes a reality, another aspect of the flight will also be of historical importance.

The ARRL reported recently that "Renowned former TV newsmen Walter Cronkite KB2GSD, will be back in the anchor chair for the historic shuttle flight that carries John Glenn back into space this fall. Cronkite, who's 81 and retired from his long-held anchor position at CBS in 1981, will report on Glenn's return to space for CNN".

I remember seeing film clips (at the pictures on a 'Sat' day) of Walter reading the news in the days before TV in Australia. He was well known and respected as a reporter in the early days of radio and, later, TV. I never had the pleasure of a contact with Walter on-air but I understand many Australian amateurs did.

Sad News

Peter Guelzow DB2OS sadly reported that Leonid Labutin UA3CR died of a heart attack on 10 September 1998 at his summer residence near Moscow. Peter stated that Leo was a very well known and respected person in the Russian amateur satellite and space scene for a long while, and was very active until his death.

He was at the South Pole after the launch of RS5 through RS8 for testing store and forward techniques from such remote locations. He also assisted the Northern Transpolar Ski Trek Expedition between the USSR and Canada in 1989 that included communications via Amateur Satellites (many schools in Australia followed this expedition via the 'digitalker' on UoSat-2).

Leo was directly involved in various RS satellite projects, and helped to negotiate the delivery of amateur radio equipment to the MIR space station. Leo operated a Satellite Gateway Station via UO-22 and was responsible for much of the packet radio message flow into and out of the Moscow area of Russia. Leo will be missed by the entire amateur satellite community. For many of us, Leo's name was synonymous with satellite operations in Russia over many years.

Latest Announcement Re MIR Life Span

Miles Mann W1F reports that the current plan is for the Russian Space Station MIR to be occupied until approximately June/July 1999. After this date, the crew will leave MIR and return to earth.

A remotely controlled booster will dock with the MIR station and then fly MIR into the Pacific ocean a few months later. If the occupation of the International Space Station is delayed, Energia reserves the right to extend the duration of the manned MIR missions.

Sputnik RS-17 No 2

Many readers will remember RS-17, the SPUTNIK replica, last December. It was launched from MIR to commemorate the

Table 1

RS-12

Uplink:	145.910 to 145.950 MHz CW/SSB
Uplink:	21.210 to 21.250 MHz CW/SSB
Downlink:	29.410 to 29.450 MHz CW/SSB
Downlink:	145.910 to 145.950 MHz CW/SSB
Beacon:	29.408 MHz
Robot:	Uplink 21.129 MHz Downlink 29.454 MHz
Mode:	Last reported in mode T

RS-13

Uplink:	21.260 MHz to 21.300 MHz CW/SSB
Uplink:	145.960 MHz to 146.000 MHz CW/SSB
Downlink:	29.460 MHz to 29.500 MHz CW/SSB
Downlink:	145.960 to 146.000 MHz CW/SSB
Beacon:	29.504 MHz
Robot:	Uplink 21.140 MHz Downlink 29.458 MHz
Mode:	Last reported in mode K.

launch of the original SPUTNIK. RS-17 beeped away for over six weeks and was heard by thousands of people around the world. An identical replica was also delivered to MIR last year and is still on board. Later this year it is planned to install new electronics and battery. It will then be launched from MIR. This will be quite an event as it will be among the very last amateur radio activities to take place before MIR is de-commissioned.

The State of RS-12/13

This satellite has been going through a period of mode changing which has left a lot of people wondering. RS-12/13 and FUJI are the only LEO satellites left which support reasonably reliable analogue (voice) operation. They are quite important for those satellite users who choose this mode for their day to day operations. To that end, the latest information on RS-12/13 from the *AMSAT News Service* is shown in Table 1.

The RS-12 transponder, in particular, has seen many recent changes in operation during the past weeks. Modes K, T, KT, and simultaneous RS-13 operation, have all been reported by a number of stations. The RS-12 beacon is now transmitting the word 'test' in slow CW after the usual fast CW telemetry.

No official word from the satellite controllers has been received. You will need to monitor each of the frequencies carefully to determine the transponder in operation and which mode is turned on. RS-12/13 command is now in the hands of Alex Papkov, in Kaluga City, Russia.

Meanwhile, back at the ranch, things are looking up for analogue satellite operators. It was announced recently that SEDSAT-1 was on track for launch in October or November. More news on this as it comes to hand.

VHF/UHF

An Expanding World

Eric Jamieson VK5LP

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Peckat: VK5LP@VK5WI.RADL.SA.AUS.OZ

E-mail: vk5lp@ozemail.com.au

All times are UTC

Beacons

Colin VK5DK sends a short note to let all know that the VK5RSE two metre beacon on 144.550 MHz is now using a 4 x 4 element Yagis connected via a 4-way power divider.

One Yagi is beamed west, one beamed towards Adelaide, one beamed north east (VK2/VK4) and one beamed east. The antennas were changed over on 5 September.

Colin would be interested in any reports of how the beacon's signal compares to previously when a turnstile was used as the antenna. His e-mail address is vk5dk@ansonic.com.au.

The V73SIX beacon has changed frequency to 50.014 MHz.

The Christchurch VHF DX Group advises of a new beacon ZL3SIX on 28.228 MHz, power 10 watts, antenna a half-wave vertical. The trustees, Ross ZL3ADT and Mike ZL3TIC, will be interested in any reports. E-mail to Ross at z13adi@xtra.co.nz and/or Mike at Mycom@xtra.co.nz.

Also, ZL3SIX on 50.040 MHz operates with a power of 70 watts, and a two phased dipoles antenna. Reports are also sought.

From the JA six metre WWW cluster, XE1KK/b on 50.110 was heard in A35 at 0240 on 6/10/98 (this is probably a keyer using 50 110).

According to Ted Collins G4UPS, the South African beacon ZS6TWP on 50.044 MHz peaked to 579 between 1854 and 1902 on 15/9. Its full locator is KG46d.

TV Offsets

Mike ZL3TIC reports he receives e-mails asking for details of 45/46 and 55 MHz TV and off-sets in ZL, VK and the Pacific regions. The address is <http://www.radioinfo.co.nz/6mfreq.htm>

He says band conditions are improving on six metres.

Also, remember the beacon ZL3SIX frequency is 50.040 MHz, location 20 km south of Christchurch, power 70 watts.

Six Metres

Scott VK4JSR expects to operate from Lord Howe Island from 18/11 to 22/11 inclusive. Equipment is a Yaesu FT-847, running 100 watts to a five element Yagi on 50 MHz, and a dipole on 28.885 MHz. Currently awaiting call sign allocation.

David Clegg VK5AMK reports that on 1/10 he worked from 0431 to 0438 JK8FGX, 0437 JA8QX and JA8NAE, all around S5. Using a Kenwood 680S, David said the highest frequency commercial signal heard was voice on 34.875. Unfortunately, there is a gap between 35 and 45 MHz in the 680S so there may have been signals higher up.

Neville Mattick VK2QF, in a brief message, says he is still on six metres from QF47, focussing mainly on F2 and F2E, usually CW. He suggests you check his URL for all current six metre DX activity from his location: <http://wvsnsoft.net.au/~vk2gf>

Ray VK4BLK (ex-VK3LK) writes that no six metre DX came his way during May to August. Since then, as follows: 4/9: 0520 JAS; 12/9: 0400-1030 JAS; 13/9: 0455-0548 JAS; 14/9: 0810-1024 JAS; 20/9: 0440-1046 JAS; 25/9: 0820 KH6HME/b, KH6HI/b, 0834 KHTL 5x5, 0850-1146 JAS, 2300-2323 JAS; 26/9: 0918-0927 JAS; 27/9: 0351-0450 JAS; 29/9: 0930-1037 JAS; 30/9: 0640 KH6HI/b, KH6HME/b, 0656 WH6O 5x4, 0700 KHTL 5x1, 0714 KH6GS 459, 0700-1200 JAS.

Ray now lives at Yeppoon, so is in a position to make the most of TEP openings. Interesting to note that JAs at times have only been via afternoon type TEP, others by evening TEP through to 1200, and some starting in the morning at 2300. Thanks Ray.

Alaska

Steve Gregory VK3OT/KL7SIX, e-mail steve_vk3ot@hotmail.com advises of visual auroral activity on 30/9 for the first time, much to the delight of all the family. NL7OW was in on 50.130 5x5 on AU b/s from BP54.

Ten metres was open from 2400 to 0400 and he contacted VK7IK/3, VK2BA, VK2QF, VK4BRG, and VK6KH who all expressed the wish and will to work KL7 on 6 metres.

"I am set up on 28.885 with 500 watts and an elevated ground plane and by being on this frequency daily I am somehow coaxing contacts between KL7 and VK6 at 15000 km on what was hitherto a dead band. So, next stop 50 MHz in late October."

"What started a week ago as weak signals from VK2RSY/b on 28.262 has rapidly accelerated to good paths as far as VK6 on 28.885 MHz now we are past the equinox."

"On 1/10 the band opened on 28 MHz at 2330 to VK7IK/3, VK4APG, VK2QF; then at 0200 VK2RSY/b 28.262 539, VK5WI/b 28.260 539, followed by intermittent receipt-

ion of VK6RWA/b 28.264 559 on top of the JA5 beacon 28.263 339. David VK2BA announced a six metre path to JA8 existed.

"Don VK6HK (15,000 km) on 28.885 was marginal around 0300 but improved at 0400 to 5x7 with rapid QSB and phase distortion, classic indicators of decaying F2. This is the first VK6 to KL7 in over a decade on ten metres and shows the band is improving rapidly. All using a rotary dipole at this end."

"NL7OW was in on AU backscatter at 0700 and a visual fast moving green aurora was noticed above my house at an angle of 45 degrees at 10 pm local time."

"As to how to work KL7 from VK, I suspect given the beam heading is 015 degrees that you need a good JA8 opening and should check for both 49 640 DARN radar signals and 55 2406 TV from KTUU on Mount Susitna. The TV will sound raspy with a 60 Hz frame frequency of the US NTSC system just like KVZK Pago Pago on 55.2498."

"I suspect the window will be from 2330 to around 0330 (sunset), and that November and December are the prime months."

"Active stations are Steve KL7FZ who runs 400 watts to a 7 element Yagi in Wasilla BP51, Dan KL7Y an itinerant operator also in Wasilla, Tom NL7OW a blind operator from Kenai or Homer Alaska, in BP52 250 miles south of Anchorage, and Al Noe KL7NO in BP54 at Fairbanks some 300 miles further north."

"If you hear the radar call 907 373 5435 or 907 376 OHMS (yes OHMS)."

"Not much else to report. Don't forget that most USA and certainly all KL7s use 50.125 for calling and occasionally monitor 50.110. Openings are expected from US October/November so watch the pagers and other indications and expect to hear US soon."

Seonet Convention

Another reminder that the Seonet Convention in Singapore will activate 9V8SEA, which will include six metres, from 0200 on 13/11 to 0700 on 15/11. Six metres will be on 50.085 CW or 50.115 SSB. Full information was given in these notes last month.

Cocos-Keeling (VK9C) and Christmas Islands (VK9X)

Charlie W0YG, currently in South Africa, and George W8UVZ will operate from Christmas and Cocos Islands from 6 - 20 February 1999. They will spend a week at each location, primarily on the low bands, but they will attempt some six metre activity.

Tajikistan

Nodir EY8MM in MM48 is now active on six metres with a TS-570S at 100 watts. Antenna, four element Quad, ready in October. All Extra Class stations in EY are

allowed to use 50 MHz. If you need a copy of the licence Nodir can send it to you. Tel: +7(3772) 21-4706 Home. E-mail: EY8MM@SOVAM.COM. (Spelt TadzKustan in the atlas, the country joins the northern border of Afghanistan, so it may be an interesting distance from Australia during F2 openings. VK5LP)

Leonids Meteor Shower, November 1998

(Excerpts from a letter from COMNAV-SPACECOM, Dahlgren, VA, published in the 50 MHz DX Bulletin).

Six metre operators should be aware of the increased possibilities of wide-spread Sporadic-E clouds to the deposition of meteor "dust" in the E-region. Said dust consists largely of atoms that are easily ionised and when ionised have a relatively long lifetime (compared to the natural constituents).

This message is to heighten your awareness and discuss preparations for the November 1998 and 1999 Leonid meteor storms.

Each November, the earth crosses the path of the comet Temple-Tuttle. As the earth passes through the debris trail from this comet, the Leonid meteor shower occurs. Typically this results in about 15 meteors per hour entering the earth's atmosphere. But, on certain occasions the meteor activity can reach "storm" levels, with thousands of meteors observed per hour.

The comet's orbital period is approximately 33 years. This year, and next, will be the most intense meteor storms of the 33 year cycle. The peak period of the meteor activity lasts for a span of two to six hours, and can be fairly accurately estimated. This year's peak is expected on 17 November at approximately 1900.

From a period of 1100 on 17/11 until 0100 on 18/11/1998 (maximum +/- six hours), all users of satellite assets should monitor their system very carefully. Naval space command is currently planning to add manning at the satellite operations centres. Nobody knows what can occur to the about 500 satellites now in orbit.

Europe

Ted Collins G4UPS reported September as excellent for 28 MHz, with obvious F2 propagation to VK, JA and other parts of the world. He said 28.885 - the liaison frequency - has been quite busy with VK6RO, PY5CC and others using it.

Geoff GJ4IC sent information from the December notes of HRT. He says: "The DX continues! Following on from last month's reports a very large Es opening occurred on the 15th August both on 50 MHz, 70 MHz and 144 MHz. Six metres opened very early throughout Europe, almost every country was

worked/heard in the UK, this was by far the biggest opening this year, and yet so late in the season!

"Martin G3VOF (Essex) reported working UA9SLX/L091 at 1118 which was a new country! PE1PZ also worked the UA9 a little later, as did G3WOS, G3FPQ, G3HBR, GJ4ICD, G4CCZ, F6IFR and many more, the distance was around 4,000 km which indicates double hop Es.

"At 1650 LU3EJW was into Europe big time on "6", several Gs were worked including G3WZT, G4RQI, G6LJJ and Clive Penna GM3POI. His best DX was OH2BC at over 12,800 km! Eight countries were worked in Europe. A little later ZD8VHF/b (50.0325 MHz) was copied by Al Harvey GU7DHI and GJ4ICD.

"On the 16th August Dave N5JHV in DM62 (New Mexico) had a 50 MHz Es pipeline into the UK at 1745. Dave worked several "G" stations during the opening at over 8,000 km; at 1820 GD4XTT had an Es opening on 144 MHz to OK, and Jon OY9JD (Faroe Islands) managed to work 7Q7RM in Malawi on 50 MHz for a first between those two countries.

"Whilst everybody was watching the BBC 9 pm news on the 17th Larry, TZ6VV (Mali) had a 30 minute 50 MHz opening into Europe via Es! Larry worked 35 grid squares, 11 countries, and completed 60 QSOs with many UK stations such as Mike G3OIL, Trevor G3ZY, ONs, PA0s and GWs.

"A small Es opening on the 23rd provided a "top end link" (F2 to Spain then Es to the UK) with Peter PY5CC/GG54 in Brazil, he managed to work 35 stations in ON, DL, SP, F, PA, G, GW and GM in the opening which started at 2000, best DX was GM3POI.

"Early on the 28th August at 0600 50 MHz beacons ZS6DN and ZS6TWB were copied in Europe, this opening is most interesting as on 28th August 1988 the first ZS6 to G/G QSO took place on the band, it seems quite incredible that a repeat some 10 years later has occurred exactly to the day; later at 1810 ZS6AXT was 539 into Jersey and stations in Argentina were worked in France.

"Ivo ZS6AXT who is located in Pretoria worked 1, EH1, IS0, 4Z, F, EH3, EH5, SV, S5, YU on the 29th and the 30th produced TZ6VV into Europe, this was a very wide-spread Es event with Larry working over 100 stations, later in the day Argentina (LU) was into F/GJ.

"Into September now, the 1st recorded a SFI (Solar Flux Index) of a massive 179, this was the highest recorded so far in Cycle 23, but beware! Solar Flux does not always indicate good conditions on the VHF bands, by this I refer to F2/TEP openings on 50/70/144 MHz.

"During last cycle some very intense

observations and data were recorded in respect to openings versus solar parameters, on many occasions openings transpired during high Geomagnetic/Solar activity periods, on other occasions no openings transpired when the solar flux levels were at their peak, so don't get caught out, watch the trends of 28 MHz, also 14.345 MHz and 28.885 MHz where the dedicated group of VHFers will be passing information around the world."

Geoff Brown's new address is Rockdene, La Rue du Rondin, St Mary, Jersey, CI or via e-mail to equinox@jil.net The Internet 50 MHz/70 MHz/144 MHz DX News is at <http://hser.jil.net/~equinox/50dx.html>.

Two Metre 358 Net

Barry Miller VK3BTM reports that Len VK3BMY, in Numurkah (about 32 km north of Shepparton), has been attempting to get his fellow local amateurs interested and operational on 2 m SSB. To help in this, Len has been running a 2 m SSB net at 0930 (1930 EST) on 144.150 every Wednesday night.

However, please note the following change of time. Len VK3BMY advises that the Shepparton Group 2 m SSB net has shifted to a start time of 1030 (2030 EST). Due to the increase in participants, the previous timeslot of 1930-2000 EST proved too short. Now, by starting after the Shepparton Group FM net, it will allow the SSB net to run as long as necessary.

Len would be very happy for anyone to come up on the net to help demonstrate to his local radio group members the fun that can be had with SSB. From this, hopefully some activity on 70 cm or above might eventually take place.

"If you're interested in joining in, but are having trouble hearing the net or being heard, send me a message on BMiller@vnpbrom.telstra.com.au and I'll let Len know."

Microwaves

Neil Sandford VK2EI of Port Macquarie (ex VK6BHT of Geraldton) sent a fax with news on 24 GHz activities from his new location.

During a trip involving long distances around Australia, Wal VK6KZ found himself at the new location of Neil, and he "just happened" to be carrying 24 GHz equipment! For a considerable time, when Neil was at Geraldton, Wal from Perth had maintained contact with him on many occasions using various microwave bands, so it was not surprising that another contact should be attempted.

Neil wrote: "On 13 September, Wal VK6KZ/p2 at Sealy Lookout (310 m) just north of Coff's Harbour, made contact with Neil VK2EI/p at North Brother Lookout (490 m) on 24 GHz, a distance of 157.5 km. Initial

reports were 5x3 and 4x5 respectively, peaking to 5x4 for the remainder of the contact from 0535 to 0550. We intend to lodge a claim for the Australian record by extending our previous VK6 record of 147.3 km in January 1998.

"It is interesting to note that Wal travelled 11,501 km to make the contact - that must be some sort of record in itself! Calculations using the RSGB UWV Handbook Path Loss Programme indicates this probable line-of-sight path had observed results agreeing closely to predicted.

"The weather was fine and very hazy with high scattered cloud and a very light breeze. Temperature/humidity was measured at VK6KZ as 24C/93%RH and VK2EI 18C/57%RH which is far from ideal."

VK2EI has now retired to a new house on a prominent site at Port Macquarie and plans to be operational on 10 GHz from about next December, with 24 GHz and 5.7 GHz also.

Further to the above, Wal VK6KZ, now home, said that the equipment used was the same as that to set the previous record in Western Australia.

He also reported travelling 11501 km to make the contact and 5175 km to return home! He visited his son and family in the Kimberley regions of WA, and his daughter and her family in Melbourne on the way to Port Macquarie, but returned direct to home.

In forwarding a copy of a microwaves contest details in the US, David VK5KK adds wistfully: "We can only wish for this sort of activity on 10 GHz ... 36 stations within 400 km!"

Larry Fily K1LPS sent preliminary results of his 10 GHz activity on 19/20 September. QSOs: 84 callsigns; 36 stations with 3600 distance points; total points 13,396. Best DX: FN44IG to FN31FH, 377 km (234 miles) to K1UHF. Total claimed score: 16,996 (Preliminary).

System: SSB Electronics transverter modules. 3 dB NF, 180 mW out (for better results this needs to be increased), 24 inch dish with Chaparral prime focus feed. IF driver: Yaesu FT-290R. WBFBM. 35 mW Gun/ARR receiver board, 12 inch dish w/ waveguide feed.

IPS Daily Report

David VK5AMK davelegg@cobweb.com.au advises: "I get this e-mail every day by 'subscribing' (no cost). I wonder if you get it or others may be interested in the service with 6 metres on the up." Details for one day are below as an example but contact David if you run into problems.

Subject: IPS Daily Solar and Geophysical Report - issued at 2330 02 October 98 by IPS Radio and Space Services from the Australian Forecast Centre.

The report covers Solar Summary, GOES satellite data, solar forecast, magnetic summary, flux, A and K indices, global HF propagation forecast, Australian Region ionospheric summary and forecast and so on.

IPS Radio and Space Services PO Box 1386 Haymarket NSW 1240 AUSTRALIA tel: +61 2 9213 8010 fax: +61 2 9210 9060 email: asfc@ips.gov.au . WWW: http://www.ips.gov.au/asfc . FTP: ftp://ftp.ips.gov.au/users/asfc/.

One Metre News

An e-mail from Ken Pincotti VK3AFJ was in response to my recent writings (August Amateur Radio) on one metre activity.

Ken said: "I think I can claim to be one of the pioneers on this band, as Bert VK3AAF and I were active a couple of days after the Radio and Hobbies magazine published the article on the one metre mod-osc and super regen receiver. Within a week, I had my equipment installed in the car, and was operating mobile, back to Bert."

Solar Flux does not always indicate good conditions on the VHF bands. . .

"At one stage we held the distance record of 68 miles. I stayed with the mod-osc/super regen set-up, but Bert modified a disposals radar set."

"Since those days, I've had several changes of QTH and my old log books have never been unpacked, and I do not know just where to look for them. [What a pity!] ... VK5LP]. I do recall that we stirred up a lot of activity around Melbourne, and by the end of the following year had over 60 stations active. Those were the days when amateur radio was fun, and I have some pleasant memories of those activities."

Ken - you must find that information - please! ... VK5LP.

Spring VHF/UHF Field Day

Last month I advised of the field day to be held on 14-15 November. Details of the Spring VHF/UHF Field Day are included on page 36 of October *Amateur Radio* and relate fairly closely to those of the January field day.

Chas VK3BRZ is one of many pleased that the field day has been organised. He will join with David VK3XLD and Les VK3ZLS and operate from Blue Mountain. He says: "We probably will not be out to win as much as

just have fun. We will have all bands from 50 to 1296 MHz."

John Martin VK3KWA advises that the two telephone numbers published last month are for Ian Godsil VK3DID. John said advice of this should have come to me.

John also says: "The time limit for repeat contacts will be three hours, not two hours as advised to you by Rod VK2TWR. The original intention was to make it two hours, but discussion with a number of locals revealed 100% in favour of three hours. When the logs come in, it may turn out that the nation-wide majority would prefer two hours after all. If so, I will make the change for both the spring and summer field days next time round."

"I am aiming at getting the Ross Hull rules in the November issue. Changes will be:

(a) Six metre scores to increase with distance but one point only for contacts in Es range (1000 - 2500 km), and a similar drop in score for contacts in F2 range. This will make scoring more commensurate with the degree of difficulty of the contact, and prevent six metre scores from deciding the outcome. Last year was too close for comfort in this regard.

(b) Shorter duration. I am most reluctant to do this, but I have received constant complaints about the duration from some entrants and it is time to see whether their views are supported by the majority. The level of activity in the last two weeks of the contest has been poor over the last few years, so it may not make much difference!"

The West Australian VHF Group Inc

This very active group includes progressive thinking amateurs who continue to set an example for what can be achieved if you are prepared to devote time and energy, and finance, to the tasks seen to be necessary to support the day to day activities of amateurs interested in the bands above 50 MHz, particularly in the field of beacons.

I hope I can find space next month to summarise the wide-ranging Annual Report of the Group's President, Alan Woods VK6ZWZ. It is good reading.

Closure

It will be interesting to see whether the end of October, through November to December produces any interesting F2 contacts.

Closing with two thoughts for the month:

1. Ever notice that the whisper of temptation can be heard farther than the loudest call to duty? and

2. I've learned the same thing about my garden that Adam and Eve learned about theirs. It's best to follow instructions!

73 from The Voice by the Lake.

ar

Silent Keys

Due to space demands, obituaries should be no longer than 200 words

What's New?

New products of interest to radio amateurs

JAYCAR WOOD

55 Ryan Road

(Phone) (041) 553 111

New KENWOOD Dual Band HT

In the USA, rumours were circulating before the 17th Annual ARRL/TAPR Digital Communications Conference that a new piece of hardware would be released. But not in the wildest of dreams did anyone come even close to what it was.

The device is a new KENWOOD dual band HT, which normally would not be very newsworthy, but this one IS different. It is a full TNC and dual band radio built into a HT.

The TNC not only has 1200 bps built in, but also 9600. As well, it sends and receives APRS messages and position reports, has a GPS interface, displays call signs of heard packet stations and their positions, displays weather information of any amateur weather stations in the area, and has built in support for DX clusters.

The device will also plot the positions of any APRS station it hears onto the screen of an attached HGPS unit, and when connected to the Kenwood SSTV adapter the unit makes a very small portable SSTV station.

This HT has even been used, with a 3-element Yagi attached, to contact UHF PACSAT at 9600 bps, running only five watts!

The cost is reputed to be around the cost of a good dual band with the added cost of a TNC. And it is the same size as any other five watt dual-band.

I can hardly wait for it to be released in Australia.

Jaycar

JAYCAR has announced the release of new items that may be of interest to our readers, particularly those with computers or who are interested in weather details.

Wireless Indoor/Outdoor Thermometer

This new product will support up to three remote sensors which will transmit to the main unit, usually mounted in the house or could be located in the shack. You can monitor a wine cellar, garage or nursery, etc, all from the one unit.

The main unit features a high/low alarm, for every sensor, minimum and maximum reading with a temperature range of -5° C to 50° C. The remote sensors are splash proof and have their own digital temperature display and can transmit up to 30 metres. Main unit (Cat QM-7220, \$119) is supplied with one sensor and extra remote sensors (QM-7221) can be purchased for \$49 each. **Hard Drive Cooling Kit**

You can protect and extend the life of your computer hard drive with the simple addition of this Jaycar Hard Drive Cooling Kit. It installs in any vacant 5.25" or 3.5" slot in minutes and will dramatically improve the ventilation within the case using dual, high efficiency fans.

The air filter is easy to access and the kit is supplied with Y adapter for easy connection to any hard drive. So, if you have a problem with your processor running hot, this could well be the answer. Cat XC-5046, \$39.95. **Extremely Large Digital Clock with Humidity, Temperature and Calendar**

This incredibly large digital clock also displays the date/month, day, temperature (Celsius and Fahrenheit) and humidity. The huge display measures 146 mm (w) x 95 mm (h) and is ideally suited for homes, wine cellars, offices, factories or the radio shack. The unit (XC-0232) operates on two AA size batteries.

(continued from page 36)

sulphate of copper as speedily as it is dissolved. When this is not the case, the copper sulphate solution diffuses through the cell and is decomposed by the zinc plate, the oxygen joining with the zinc forms zinc oxide and the copper, being deposited on the zinc, looks like black mud in general appearance.

If the cell is idle or open, this action will take place most rapidly, reducing the effective output of the cell.

Average life is from four to six weeks for a local circuit, for a mainline battery of which three or more wires are supplied, is about eight weeks, and for a quadruplex battery, about five months (a Quadruplex telegraph system is one in which four messages may be transmitted over one wire at the same time, two from each end, simultaneously).

Other cells used were the Leclanche, Fuller, chloride of silver, and the Edison-Lalande Cell (more on these at a later date).

If any reader has a particular topic which they feel may be of interest to other readers, please drop me a line.

The WIA regrets to announce the recent passing of:-

A J	GILLHAM	VK2DG
G D (Geoffrey)	CLARKE	VK3ARP
K V (Ken)	STEVENS	VK5QW
W M	CRAWFORD	VK5XB
G R W (Graham)	VEITCH	VK6FS

William Malcolm (Bill) Crawford VK5XB

Bill's many friends were saddened to hear of his passing on 28 August 1998 at the age of 73.

Bill was first licensed in 1959 as VK5ZDE. He moved to Kingston shortly after. Success with his CW exam in late 1960 gained him his full ticket and Bill set about building an excellent shed top station.

He enjoyed home-brew construction that included solidly built power supplies, couplers and mobile gear on 40 metres.

Bill was one of the first operators in South Australia to experiment with SSB and encouraged others to try out this new mode. Two metre FM experiments across the water from Kingston to Victor Harbour with Jack VK5LR were enjoyed by both during the 60s.

He joined the WIA in April 1961 and was proud of his continuing membership.

Bill and his wife Marjorie moved to Adelaide during 1979. Bill was always a cheerful person and for many years he was a familiar voice on the 40 and 80 metre daytime nets. He enjoyed talking to his many friends.

As well as an enthusiasm for amateur radio, Bill had a fine singing voice and enjoyed nothing better than a sing-along around the piano.

Bill VK5XB is survived by his wife Marjorie, and daughters Kirsty and Alison.

Rest in peace, "whiskers"!

John Drew VK5DJ

WIA Divisions News

Forward Bias — VK1 Notes

This column has become, albeit somewhat by default, a bi-monthly affair. *Blemings Forgets Important Dates - Again.* Sigh! Sorry about that folks...

That said, I suspect not much has been missed as we've had a relatively quiet time in the Division of late with the exception of the welcome start of the fox hunting season.

Broadcasts

As mentioned at the September meeting, Waldis VK1WJ, our Broadcast Officer, has indicated, not unreasonably, that he would like at least an occasional break from presenting the Sunday night broadcasts. Please consider helping out with a broadcast from time to time as we are keen to avoid the responsibility resting on the same dozen or so volunteers who help out with everything that crops up.

Looking Ahead

February is but a few months away and with it comes the anticipation of the excitement, adventure and really wild things that occur at our AGM.

Well, I guess they aren't really that wild, nor particularly exciting. None the less they are an important part of running any incorporated organisation to ensure that the necessary formalities are performed.

Nominations for positions on the committee are welcome and, indeed, I would encourage you to become involved. For my part I am unsure whether I will stand for reelection to the role of President as the last few months have seen increasing time pressures in both the professional and personal sides of my life. Whilst I'm happy to report that these pressures have, in the main, been pleasant ones, I see the months ahead becoming more hectic leaving me with less time to do the position justice.

Divisional Leaflet

Mike VK1MJ has put some considerable effort into an information leaflet that will be going to press during late October/early November. The leaflet contains details of

repeater and packet frequencies, Divisional contacts for a range of services, and information on our regular events such as technical group and general meetings.

We intend distributing this as widely as possible to both licensed amateurs and the general public alike. If you'd like a few to have on hand or to hand around to fellow enthusiasts, please contact Mike or myself.

Coming Events

Following on from the Orionid Meteor Shower in late October, the Leonid Meteor Storm will occur on or around 18 November. Whilst the potential danger to satellites is quite real, the upside is the chance of some large scale E-layer propagation. Perfect for a bit of DX!

A reminder that the technical/packet radio group will be presenting the 1998 VK1 Amateur Radio Symposium on Sunday, 22 November starting at 9 am at the Charnwood Scout and Guide halls. Details are available both on our Web site and via the weekly broadcasts.

Our November meeting will be the last for the year, held as usual in the Griffin Centre at 8 pm on Monday, 23 November. This will be a largely social evening and we'll be having some light refreshments and nibbles to see the year out. Why not come along?

Hugh Blemings VK1YYZ
Division President

VK2 Notes

Olympic Games

The question uppermost in many people's mind at the moment is, "What are we, as amateurs, going to lose in the way of frequencies; and will it be permanent?"

The WIA is heavily involved in the Committee set up by the ACA, which includes representatives from Defence, Telstra, SOCOG, the WIA and, of course, ACA senior management from both Sydney and Canberra. Our involvement is, naturally, to protect as far as is possible the Amateur Bands and to ensure that any temporary loss of part of the 70 cm band is just that - temporary! We have now been assured that the temporary use will end on 31 December 2000! In this we are supported by the Defence Department who have insisted that this be a condition in their agreement to release this part of the band to SOCOG.

The VK2 Council has stressed the necessity to promulgate information as quickly as possible in order to keep our members fully informed of developments. I am pleased to report that our representatives were able to convince the Committee of the importance

of early, co-ordinated, simultaneous announcements by all the various parties. Many of our readers will have heard the three reports given by Michael Corbin VK2YC (VK2 President and one of our representatives on the ACA Committee) on the VK2 Sunday Broadcasts. For those who didn't, a report of the decisions taken so far is published elsewhere in this issue.

At this point it is very important for our members to realise that there has been, and will continue to be, maximum co-operation between the various sections of the Committee, even to the distribution of proposed announcements to ensure that all parties agreed on the information and that they contained no misinterpretation or misconceptions.

The actual area which will be affected has yet to be finally determined (although intentions are that, as far as possible, it will be limited to the Sydney basin only) and will be defined by thorough testing in the near future. Any licensed users in the band 421 MHz to 432 MHz which will be, or are likely to be, affected when the tests are conducted/ completed will be advised.

Rest assured Council will keep you informed.

Conference of Clubs

The popular Affiliated Clubs Conference, the second for 1998, is almost upon us. Gee, is it almost six months since our last one?

Ken Westerman VK2AGW and the office staff are once again gearing up for another of these important, and very valuable, get-togethers. As with every conference worldwide, no matter how good the agenda and guest speakers are, the really important liaisons take place during the morning coffee, lunch and dinner breaks. This is when the formal meeting structure is relaxed and delegates exchange information, put forward views and suggestions, and expand on concerns in a frank and informal manner.

This informal exchange is greatly assisted by the fact that all Councillors attend the conferences and, therefore, all the various portfolios of responsibility are represented. When and where? 14 November 1998 at Amateur Radio House Parramatta, delegate check-in at 08.45 hours. Is your Club sending a delegate?

Membership

The Membership Drive with the prize-draw for an ICOM 706 Mark II, donated jointly by Icom and Amateur Transceiver Radio Centre, is going very well with, to date, ninety new applications received; and the advertising has only just got fully underway!

Have you got a non-member friend who would like to be in the draw, quite apart from

all the benefits he/she, and the hobby, gets from his/her membership? All NSW Affiliated Clubs have New Member Information Kits, or one can be obtained by contacting the office.

By the way, there are still a few people who are a little slow in renewing their membership. If you know of any in your area, why not give them a little nudge! If it is because of financial considerations, remind them that they may be eligible for concessional rates and/or fees can be paid, for both full and concessional membership, in two six-monthly payments.

WICEN

For a number of years, WICEN in NSW has been essentially divorced from the VK2 Division; in fact they are registered as a separate company.

The reasons behind this 'divorce' were numerous and are now relatively unimportant. What is important is the desire, both on the part of this VK2 Council and also on the part of the WICEN (NSW) Executive, that closer links should once again be forged.

To this end, a meeting took place recently between the Council and WICEN senior representatives to discuss ways of future co-operation. A number of agreements transpired which will allow WICEN the use of Amateur Radio House for meetings and provide a large display area for WICEN Awards and Plaques within the Conference Room. Storage facilities for WICEN equipment were also discussed and agreed in principle together with the future use of the Dural facility for WICEN exercises. As the old saying goes, "better late than never"!

Trash and Treasure

The next T & T will be held at Dural on Sunday, 29 November, after the Sunday Morning Broadcast. Vendors will be allowed to set up from 11 am. A BBQ will be provided by the Division as an expression of our thanks for the support throughout the year.

This will be the last T & T for the year. Why not come along and say Hi! You may also find that bargain you have been looking for!

Eric Fossey VK2EFY
Division Secretary

VK5 and VK8 Notes

Divisional Council

Following the passing of Don VK5ADC, who was a member of Council, it was necessary that a member be co-opted to Council to fill the vacancy.

As a result, the Council co-opted Merv Millar VK5MX. Under the rules of the

current constitution Merv will serve on Council until the next Annual General Meeting. He will be assigned a particular portfolio at the next Council Meeting.

Constitution

Jim VK5NB, who is Chairman of the Constitution Review Committee, advises that we can expect an initial (draft) version of a "revised" constitution probably within the next four weeks.

It is expected that members will have access to copies to allow them to peruse the document and provide suitable comment. I suggest that you could be doing both yourself, and the hobby of Amateur Radio in the future, a favour by taking an active interest in this matter.

Andy Thomas Back in Town

Our own South Australian astronaut, Andy Thomas is back in town. However, there has been very little chance to spend time either seeing him or talking with him. Since his return to Australia he has been travelling to various venues, many interstate, and conducting seminars and making presentations. This has been to the extent that even his family has seen little of him.

I did have the opportunity of a pleasant chat with Andy by telephone and was able to confirm the situation regarding a number of matters including that of QSL cards for the MIR Space Station operation as VK5MIR (see *QSP News* elsewhere in this issue of *Amateur Radio*). There is no doubt that Andy obtained great personal pleasure and benefit from having access to Amateur Radio whilst on the MIR mission.

Andy has presented talks and lectures to many different organisations as part of his duties and commitment to NASA. He will, in fact, have made around 30 or more presentations over a period of 14 days. Unfortunately, I was unable to be present at his recent talk given at the Adelaide University.

I have been provided with some excellent photographs taken of and from the MIR Space Station, some of which include shots of Adelaide and surrounding areas of South Australia. I hope to use a couple of these photographs in connection with the "special event" VK5MIR QSL card. Andy now also has a new VK5 callsign. However, he has had no time to make use of it as yet.

Burley Griffin Building

Negotiations continue with respect to our occupancy of the Burley Griffin building. When dealing with Local Government it may seem progress is not as immediate as we might wish. Rest assured that the West Torrens Council seem to be taking an

approach in which they are very understanding of our interests.

At the September General Meeting of the Division the members agreed with the approach being taken by Council in our negotiations. A motion was passed which set a general figure which should not be exceeded with regard to outgoing costs for occupancy of the building. Such action seems reasonable and still allows us some room for manoeuvre in our negotiations.

As a result of this the Division was able to make a suggestion to the West Torrens Council which we hope will be successful. The suggestion has been acknowledged and we are now awaiting further word on this. Further information will be provided as it comes to hand.

Recruiting Campaign

You will be hearing more regarding this as time passes. It is seen as imperative that the WIA increase its membership base to allow us to have any chance of reasonable representation of our hobby.

I suggest to you that a most important part can be played by you as an individual, and also by the various Radio Clubs, towards encouraging other operators to join and thus help make the load lighter. In this day and age we need as much "clout" as we can muster and this can only be provided by numbers of members.

I had discussions with the VK7 Division President, Ron Churcher VK7RN, whilst he was here in Adelaide, as well as with other senior members of our organisation on both a state and national basis. It seems that, almost without exception, there is agreement on such matters. You may also very soon hear of material being produced at a Federal level which aims towards improving our operations. This material, and actions at Divisional level such as production of a revised constitution, should go some way to helping.

Meeting Program

For the last 19 months I have been looking after and arranging the program for our General Meetings. However, I feel that I am fast running out of ideas in this area of our activities.

I would be very interested to hear of someone who would like to take on the task of arranging the Meeting Program. You do not need to be a member of Council and I can assure you that the task is certainly not onerous and could indeed be made very interesting.

On the subject of meetings, the matter of a "social event" for the month of December was discussed at the September General meeting. It became clear that December is a very busy month, and that Amateur Radio

operators are well catered for with the various Radio Club social activities coming up to the Festive Season. Over past years such a Divisional activity seems to have become less and less popular.

One suggestion made was that a "social event" during the month of January may be more likely to appeal to members. To this end we invite further comment from you and look forward to hearing your opinions on this approach. The Divisional Council will be considering the matter at its coming meetings. It would be really nice to hear what you think.

More on Towers

In last month's column I provided information regarding the situation within South Australia and included some comment regarding legal precedents that exist in this state.

Several requests for details of case and court references have been received. I have temporarily misplaced my copy of the determination by Mr Justice Wells in the Supreme Court regarding Amateur Radio towers and thus do not have such information immediately available. I will provide details for you as soon as possible.

For now, the very best of greetings to you from myself and on behalf of the Council of the VK5/VK8 Division.

Ian J Hunt VK5QX

Division President

"QRM" News — VK7 Notes

This month I am filling in for our Divisional President, who is on the mainland and therefore unable to meet the deadline. The rather hectic year is rapidly drawing to a close. November will see the Northern and Southern branches conduct their final business meeting before the Annual General Meeting in February. Both branches are holding social activities during December but the North-western branch will meet as usual.

Council Meeting

Your Divisional Council will be meeting in Hobart on 15 November, the venue being the Domain Activity Centre. All members are welcome to attend but only councillors are entitled to vote. I am certain that our Divisional President will be reporting on his recent mainland journey.

Repeaters

Now that it is Spring, outside work has been carried out at most of the repeater sites after the winter chills. The Northern repeater on Mount Barrow suffered from ice and snow and the two repeater officers, VK7TMM and

VK7JG, have done a sterling job in keeping the repeater operational. At times it has been extremely difficult working in sub zero temperatures.

We so often take the repeaters for granted and fail to appreciate the effort and selfless dedication of both these amateurs in maintaining the repeaters and keeping them operational.

Work has also been carried out in the North-western branch on their repeaters at Mount Duncan and Lonah. Both needed urgent work after winter damage to their antennas. Our thanks go to VK7ZTI, VK7ZDI, and VK7KAN for going out of their way to keep them operational.

JOTA

Last month there was considerable activity associated with JOTA, all branches being involved. Most activity seemed to be centred on the north-west coast of the island. As I am writing this before JOTA happens, I can only report on proposed activity.

The Northern Branch based most of their activity at the local TAFE college, although there was a small station at Queechy, located at the High School. Activity in the south was located at scout camps.

We would like to acknowledge those amateur operators who went out of their way to erect antennas and install equipment at portable locations, often under difficult and trying conditions.

Branch Meetings

The Northern Branch will be meeting this month at the Launceston College of TAFE, Alanvale campus in Block "B" at 7.30 pm and there will be a lecture by a representative from Ericsson on communications network working. All are welcome.

In December, we are planning to meet again at Myrtle Park for an end of year BBQ. Myrtle Park is approximately 40 km north-east of Launceston, being nestled between Mount Barrow and Mount Arthur. It is quite cool because it is higher than it is in Launceston. Bring your own goodies and don't forget to bring some warm clothing as it rapidly gets cold.

The Southern Branch will be holding their BBQ at the Domain Activity Centre; for details, listen to the Sunday morning broadcast. The North-western Branch usually hold their end of year BBQ at Legion Park in Ulverstone, so listen to VK7W1 for the date and time.

Ron VK7RN will be here next month and I am certain he will have plenty of things to report. All news for inclusion can be forwarded to him QTHR.

Robin L. Harwood VK7RH

Club News

Melbourne Packet Radio Group Inc

At the next meeting of the Group on Monday, 9 November, John Hill VK3WZ will give a talk on using PACTOR in HF communications. This seems to be a growing area of interest and there is a solid core of amateurs who are quite passionate about the abilities of this mode. Come along and hear all about the finer points of PACTOR and take the opportunity to ask any questions you may have in this regard.

Nothing else to report this month, but next month in this column we will bring you a report on the Victorian Packet Network Planning and Coordination meeting held on the 31 October.

The Group meetings are held on the second Monday of each month at 1930 hrs at the Moorabbin and District Radio Club rooms, Turner Road, Highett in Victoria (Melways 77 19). All are welcome. Enquiries should be addressed to MPRGI, PO Box 299, St Albans, VIC 3021, or via packet to MPRGCM@VK3BBS.MEL.VIC.AUS.OC Peter McEwen VK3FEE

Moorabbin and District Amateur Radio Club (VK3APC)

The Club meets at 8.00 pm on the first and third Fridays each month, and every Tuesday morning at 10.00 am. Come and join us at the Club rooms in Turner Road, Highett - all are welcome.

Theory classes for prospective amateurs are starting soon, so contact the Club for information.

All correspondence should be addressed to: The Secretary, Moorabbin and District ARC, PO Box 58, Highett VIC 3190.

Ken Bridger VK3JII

Publicity Officer

Shepparton and District Amateur Radio Club

The Shepparton and District ARC held their annual "Communications Day" at the Youth Club Hall, Shepparton on 13 September 1998, and it was a great success!

All tables were booked and some 150 people were admitted. Traders reported good

sales and stated they would be returning next year.

The standard of equipment offered for sale was very good. We look forward to 1999 being even bigger and better.

Alex Batters VK3LAA
Secretary/Treasurer

Ipswich and District Radio Club

Members of the Ipswich and District Radio Club are gearing up to commence amateur television (ATV) transmissions from the repeater site at Mt Crosby.

The President, Ken Page VK4AKP, is heading the team working on the project. Permission to operate from the site and a repeater licence have been granted, and work is well under way building the necessary gear for individual members to operate alongside the repeater itself.

Test transmissions have already been carried out with very good results. Good signal reports have been coming in from as far away as Toowoomba. ATV is just one aspect of the Club which operates the following repeaters and BBS: 146.725 MHz, VK4RKP, Voice, at Mt Crosby; 145.075 MHz, VK4RAI, Packet user to user, Mt Stradbroke; 146.900 MHz, VK4RAI, Voice, Mt Stradbroke; 147.175 MHz, VK4RWM, WICEN North Ipswich (Syd Lyon VK4SL is the WICEN representative for Ipswich and Graham Reuter is the WICEN representative for Moreton); 438.375 MHz, VK4RWM, Voice, Club Rooms in Deebing Street; BBS VK4WIP-1, 145.075 MHz access via VK4RAI, 144.825 MHz access via VK4RZD; ATV 444.250 MHz out, VSB, Mt Crosby; 1250.00 MHz input, FM, Mt Crosby; under development, 145.075 MHz, standard 1K2 AFSK, Mt Crosby.

For further information, contact Ken Page VK4AKP on 0411 260 740, or via packet VK4AKP@VK4WIP.IPS.QLD.AU.OC; or the Secretary, Bob Beck VK4CPM at the same packet address, or e-mail to Bobbeck@bigpond.com.au; or write to I&DRC, PO Box 250, Ipswich, QLD 4306.

Club meetings are held every second and fourth Wednesdays at Deebing Street, West Ipswich at 1930 hours. Visitors are most welcome.

Bob Beck VK4CPM
Secretary

West Australian Hamfest

Yes, it's on again. The Northern Corridor Radio Group is presenting the 1998 Hamfest in Perth on Sunday, 8 November at the Cyril Jackson Community Centre in the suburb of Bassendean. Entry to the event by car is via Fisher Street (look for the signs), or by train to the Ashfield rail station.

Over to You

All letters from members will be considered for publication, but should be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents

Repeater Procedures

I endorse the sentiments expressed by Sid VK2SW and Ken VK3AFJ on getting contacts on country two metre repeaters, although, to be fair, my own experiences have been more favourable than Ken's. Also, it's not only rural repeaters that are quiet; even some capital city repeaters do little more than boost the ACA's coffers and get a listing in the Call Book.

It is generally agreed that there are more listeners than talkers on repeaters. That a call went unanswered certainly did not mean that it was not heard. Generating activity means getting more listeners to become talkers.

The following points suggest reasons for the lack of contacts that Sid and Ken report. Later points propose improvements to operating practices that could increase activity on amateur repeaters.

1. Some confine their VHF contacts (whether simplex or repeater) to a small group and will seldom answer a general call from a station not known to them. However, contacts are possible if these stations are called directly by the travelling station.
2. Most amateurs have been licensed for 15 years or more and have 'been there and done that', so they often become spectators or listeners rather than active participants.
3. The technical challenge to a home station of making contacts through their local repeater is normally nil.

The Hamfest commences at 10 am and promises to be the best amateur radio, CB and communications event in Perth this year.

Make sure you bring your QSL card for the QSL board and any recently constructed equipment or antennas for the homebrew competition as awards will be presented. There will be lots of things to see and plenty of pre-loved equipment, as well as new communications gear and prizes.

As usual, there will be food and drink available on the day and entry is only \$3.

4. 'Mike-fright' is not only something with which JOTA supervisors have to contend; it afflicts a surprising number of amateurs too.

5. Many repeater contacts are quite boring to listen to as they do not progress much beyond the 'rubber stamp' exchange, or cover topics that are of little interest to others. This may reduce the number of people who monitor two metres, many preferring instead to take advantage of the broadband receive coverage of their equipment and monitor other frequencies.

6. Those who set their equipment to scan several memory channels may hear a call but may miss the calling station's full call sign because of the time it takes for the set to scan all frequencies. Calling stations should perhaps key their transmitter for a few seconds before speaking to give time for receiving stations to lock on to their frequency.

7. In most areas, to announce that one is listening is the accepted way of obtaining a contact on a repeater. This is out of step with normal operating practice on HF and VHF simplex frequencies and leaves others in some doubt as to whether the calling station is actively seeking a contact.

To remove any doubt as to the caller's intention, a very short (1x1) CQ call is suggested. This takes no longer than the alternative, but is a clear statement that the calling station desires a contact.

The WIA should actively encourage the use of the CQ call on repeaters by amending the repeater operating conventions as published in the Call Book.

Peter Parker VK3YE
12/8 Walnut Street
Carnegie VIC 3163

Two Metre Mobile Operations

I have read the letter from Sid VK2SW in the September edition of *Amateur Radio*, and then that of Ken VK3AFJ in October, and I find myself wondering if I use a different 2 m band (although Sid will probably recall my last QSO with him on the Wagga repeater on 13 March this year!).

I gained my amateur licence in December

For further information, or to confirm your position at this event, you can contact the Hamfest line on 08 9402 4816, fax to 08 409 1203, e-mail to nrcg@nrcg.org.au or write to Hamfest, PO Box 244, North Beach, WA 6920.

If you are on-line, the address is <http://www.nrcg.org.au/hamfest>.
James McBride VK6FJA
Hamfest Committee/NCRG President

1987 and had a 2 m set installed in my car within days. In the years following I was rather active on Melbourne repeaters, both on 2 m and 70 cm. Since my retirement in early 1990 we have had the opportunity to travel extensively throughout much of Australia for a number of months each year, as regular listeners to the 20 m Travellers' net will be aware. My 2 m and 70 cm set has always been close at hand and I must say that I have had a great number of contacts, usually on 2 m, in most parts of the country, and certainly in all states and both territories.

I put out listening calls on the local repeater(s) and, if no contact is made, will probably repeat those calls every ten or fifteen minutes while within range of a repeater. I never break in on QSOs to make my contacts. In fact, I usually let a repeater 'cool down' for some ten minutes after others have been using it, to avoid pressuring those users into feeling obliged to reply. Of course there are some repeaters where a response is rare or non-existent, but there are many where responses are regular. Many of these contacts lead to personal meetings. One example was a very pleasant first meeting and subsequent dinner with the editor of *Amateur Radio* and his wife (plus VK3OM and his wife) in Alice Springs a few years back!

Where there is no repeater at all, and there are many such places throughout this rather large country, I leave the 2 m set on 146.500 MHz, and will often put out a listening call in a 'repeater-less' town. This has led to contacts in places like Kununurra and Broome.

On one occasion midway between those two towns I was more than a little surprised to hear a clear signal on that frequency. The source of the signal was more than 100 km distant. It came from a VK3 station who was aeronautical mobile above the Wolfe Creek meteor crater. We had a brief lunchtime meeting at the Halls Creek aerodrome an hour or so later.

Some further comments. I do not find Sydney a good place for 2 m contacts and I expect that many visitors to Melbourne may say that that applies there too.

These cities are perhaps too big and have a bewildering number of 2 m and 70 cm repeaters. But in all other capitals I have had numerous contacts.

I am not suggesting that this applies to Sid or Ken, but it is not at all uncommon to hear a weak, perhaps unintelligible signal. This may be a visitor using a handheld set, inadequate to put a clear signal into the repeater. And, of course, such a signal, if it can be read at all, does not encourage a response.

For what it is worth I use 45 watts into a roof mounted quarter wave antenna. In VK7

I have used a handheld with a magnetic base holding the quarter wave 2 m antenna onto the roof of the hire car. It also works remarkably well on 70 cm.

So my experience has been rather different from that of Sid and Ken. I would encourage all amateurs to give 2 m a try in 'foreign parts', and never to be discouraged by a lack of response to the first listening call.

On a number of occasions I have had someone come back to me after a number of calls, telling me that he (or she) had heard my earlier calls but had not been able to respond at that time.

And perhaps one final point. These days many amateurs are using rigs scanning ten or more repeaters on more than one band. With this in mind I normally try to speak slowly and mention the name of the repeater or its frequency (or its band where more than one repeater has the same name).

I learnt that the current debate whether or not to make Morse a compulsory skill is not a new thing. For example, page 11 of July 1953 AR carried four letters from members discussing the issue.

This practice has two advantages. Firstly, it means that my listening call lasts longer, hopefully long enough to stop the scanning set. Secondly, it means that the potential respondent, who may be outside, in another room, or doing other things, has a better chance to go to his set, stop it scanning and know on which repeater to respond.

Let's hear it for 2 m!

**Jim Brown VK3DL
Yan Yean Road
Yarrambat VIC 3091**

Times Change - or do They?

I was fortunate enough to be able to attend the Healesville Amateur Radio Club's Hamfest on 3 October, and picked up a bundle of old *Amateur Radio* magazines. Reading through them was quite interesting to me and, amongst other things, I learnt that the current debate whether or not to make Morse a compulsory skill is not a new thing. For example, page 11 of July 1953 AR carried four letters from members discussing the issue.

VK7OM, then a Federal Councillor, commented that "I am not so bigoted that I cannot see that Amateur Radio would benefit from the activities of advanced technicians who are interested in v.h.f. and u.h.f. operation where phone is used almost exclusively". In

other words, he supported a no-code licence, as did two of the other three writers.

VK2RH denied the possible introduction of a "novice licence", saying that, "Do not our limited bands contain enough faulty transmissions now, from A.O.C.P. holders, without inviting far larger percentage from people with even less technical knowledge and ability?" I seem to have heard that somewhere else too!

Even in those days, it was customary for any letter commenting on Federal Executive to be referred to it for 'clearance', as it were, before publication. But some very robust debate was allowed. In March 1952 (page 20), VKSPS referred to that august body as follows: "... in my personal opinion the essential difference between F.E. and an ostrich, is the fact that an ostrich cannot manufacture its own sand!"

There must have been a lot of dissatisfaction with the Executive in those days, because earlier in the same letter he explained that in the VK5 monthly notes for February of 1952 he included a paragraph which opened with, "Federal Executive has been placed on a pedestal by VK5 members together with Ned Kelly, three card tricksters, and thimble and pea experts". Not surprisingly, Federal refused to allow this to be published in the original notes, but apparently allowed it in the letter referred to above.

**Don Jackson VK3DBB
55 Ryan Road
Pakenham VIC 3810**

QSL Know How

I have just finished reading the *How's DX?* column which this month was highlighting the problems facing new QSLers (me being in that category).

The article mentioned things about direct QSLing, etc and the problems associated, and gave examples of countries that don't have bureaux, etc or don't forward to non-members, etc. All these bits of knowledge come with experience and I presume that there is an awful lot of experience out there amongst our ranks.

Would it be possible to publish an article that gives a more detailed insight into this situation, with listings of countries that do and don't, etc, etc? I realise that I am just proposing what might turn out to be quite a lot of work for someone but I, for one (must be many like me?), would love to be able to benefit from this experience about QSLing problems.

**Allan Meredith VK2NNN
ameredith@ozemail.com.au**

(Any takers? The article by Neil Penfold VK6NE in this issue may also be of some use. Ed)

Ionospheric Update

Evan Jarman VK3ANI
48 Alandale Court, Blackburn VIC 3130

Solar Activity

The quarter did not start well. Activity during July was low to very low. All indicators of solar activity were lower than expected. The IPS reported that the relative lack of activity was surprising considering the current phase of the solar cycle.

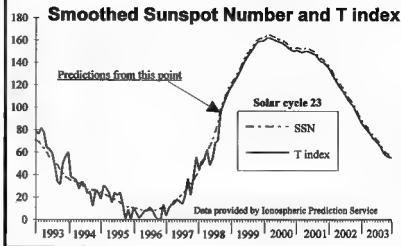
There was a significant rise in activity during August but this activity was due to one dominant region. The class X1/3B flare at 2212 UTC on 24 August had an associated proton/PCA event from 0100 UTC 25 August until 1230 UTC 29 August.

In September activity was only moderate, increasing to high on 29 September due to a class M7 flare. An accompanying proton event started at 1535 UTC on 30 September and ran until 0900 UTC on 2 October.

Ionospheric Activity

Spread F was observed around Australia during local night hours from 2 July through to 5 July. Spread F was again observed during the geomagnetic disturbances on 23-24 July and 30-31 July. Neither disturbance produced any significant MUF depression.

HF circuits that involve the polar regions were severely affected by a polar cap absorption (PCA) event on 28 August, associated with the class X1 solar flare. Polar



circuits were again affected in September by polar cap absorption events on both 25 and 30 September, the first being stronger.

Darwin also experienced some MUF enhancements in the early evening hours. The strongest being 80% between 1100 and 1600 UTC on 30 September.

Geomagnetic Activity

There were three geomagnetically disturbed intervals in July. These were on 16, 23-24 and 31 July. The first two were coronal hole related. The cause of the last was unclear.

Storm activity was reported on 27 August with the local A index rising to 54; the planetary index reached 112. It was due to activity associated with the class X1 flare on 24 August.

The largest disturbance in September was due to the class M7 flare on 23 September; it was also a coronal mass ejection (CME) event. On 25 September the planetary A index reached 121. The Learmonth A index reached 69.

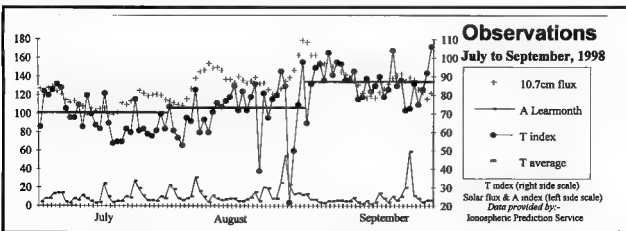
HF Fadeouts and Flares

The Ionospheric Prediction Service has added an online monitor of flares and fadeouts to their Web server. It is titled "Current X-ray Flux and Fadeout Monitor" and can be found in more than one place, the space weather status page www.ips.gov.au/asfc/status_panel/ and the Australian HF page www.ips.gov.au/asfc/aus_hf/.

ASFC stands for Australian Space Forecast Centre which is a division of the IPS. The page gives the current progress of a flare or its subsequent fadeout as they are revised every five minutes. The flare monitor graphs the flux and gives an estimate of the time that flare will be finished. The fadeout monitor shows the associated fadeout's extent in both frequency and location.

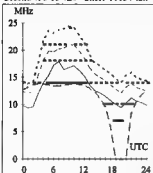
This is the first solar cycle where on-line information is available via the Web. It will prove to be more valuable as solar cycle 23, which is just kicking in, develops.

am



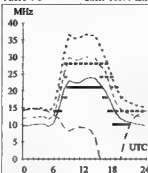
Adelaide-Capetown 226

Second 4F5-13 4E0 Short 10154 km



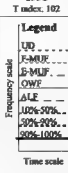
Brisbane-Dublin 335

First F 0-5 Short 16670 km



November 1998

T index: 102



HF Predictions

Evan Jarman VK3ANI

34 Alandale Court, Blackburn VIC 3130

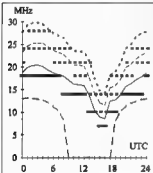
These graphs show the predicted diurnal variation in key frequencies for the nominated circuits. The frequencies identified in the legend are -

- Upper Decade (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency

Also shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when useable. The predictions were made with the Ionospheric Prediction Service program ASAPS version 4. The path, propagation mode and Australian terminal bearing are also given for each circuit.

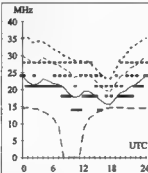
Adelaide-Honolulu 57

Second 4F7-13 4E0 Short 9160 km



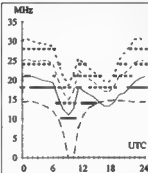
Brisbane-Lima 122

First F 0-5 Short 13056 km



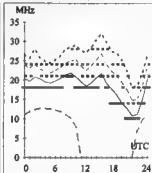
Canberra-Barbados 123

First F 0-5 Short 16232 km



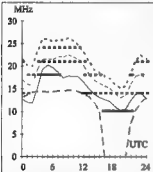
Darwin-Bangkok 310

First 2F7-18 2E0 Short 4435 km



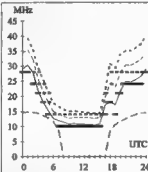
Adelaide-Lusaka 246

Second 4F4-10 4E0 Short 10788 km



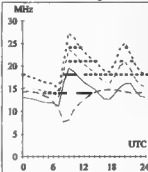
Brisbane-Seattle 44

First F 0-5 Short 11845 km



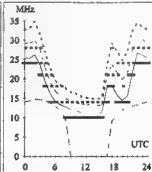
Canberra-London 136

First F 0-5 Long 23042 km



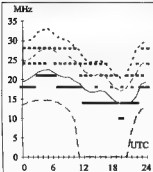
Darwin-San Francisco 54

First F 0-5 Short 12316 km



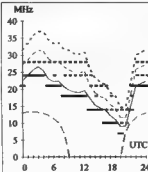
Adelaide-Singapore 311

Second 3F11-21 3E0 Short 5414 km



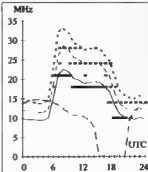
Brisbane-Tokyo 348

Second 3F6-12 3E0 Short 7159 km



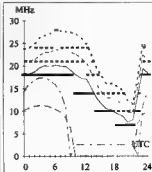
Canberra-London 316

First F 0-5 Short 16982 km



Darwin-Seoul 356

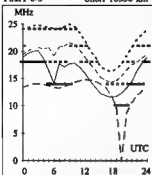
Second 3F11-19 3E1 Short 5576 km



Hobart-Dakar

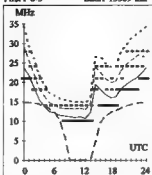
209

First F 0-5 Short 16556 km

**Melbourne-Chicago**

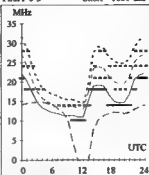
67

First F 0-5 Short 15569 km

**Perth-Washington**

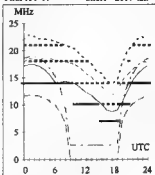
53

First F 0-5 Short 1861 km

**Sydney-Invercargill**

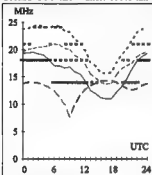
139

First F9-17 Short 2017 km

**Hobart-Montevideo**

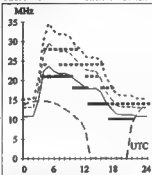
161

Second 4F6-9 4E0 Short 11043 km

**Melbourne-Moscow**

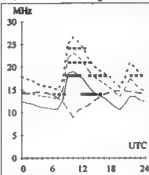
316

First F 0-5 Short 14428 km

**Perth-London**

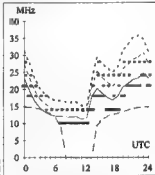
133

First F 0-5 Long 25543 km

**Sydney-New York**

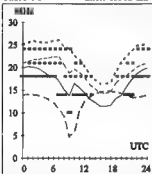
66

First F 0-5 Short 15989 km

**Hobart-Suriname**

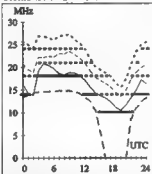
145

First F 0-5 Short 15362 km

**Melbourne-Nairobi**

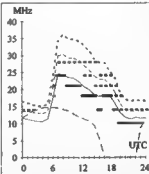
258

Second 4F3-9 4E0 Short 11500 km

**Perth-London**

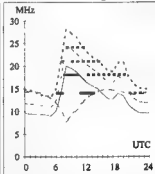
313

First F 0-5 Short 14451 km

**Sydney-St Petersburg**

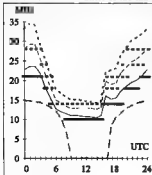
143

First F 0-5 Long 25123 km

**Hobart-Vancouver**

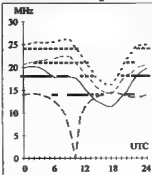
49

First F 0-5 Short 13428 km

**Melbourne-Santiago**

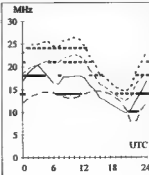
150

Second 4F4-9 4E0 Long 11272 km

**Perth-Rio de Janeiro**

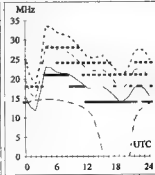
203

First F 0-5 Short 13523 km

**Sydney-Tel Aviv**

287

First F 0-5 Short 14173 km



HAMADS

- Hamads may be submitted on the form on the reverse side of the *Amateur Radio* address flysheet. Please use your latest flysheet where possible.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the form on the back of the *Amateur Radio* address flysheet.
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- Commercial advertising (Trade Hamads) are pre-payable at \$25.00 for four lines (twenty words), plus \$2.25 per line (or part thereof), with a minimum charge of \$25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of *Amateur Radio*, at:
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Fax: 03 9584 8928
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TRADE ADS

- **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Asoc TV Service, Hobart: Truscott Electronic World, Melbourne and Mildura: Alpha Tange Products, Perth: Haven Electronics, Nowra: and WIA Equipment Supplies, Adelaide.
- **WEATHER FAX programs for IBM XT/ATs** *** "RADFAX2" \$35.00, is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" \$45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" \$75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3.00 postage. ONLY from M Delahanty, 42 Villiers St, New Farm QLD 4005. Ph 07 358 2785.

FOR SALE NSW

- **RF capacitors** - high voltage and current, suitable for high power HF amplifiers and ATUs. Brian VK2GCE, 02 9545 2650
- **Yaesu FT-101** receiver, 160 to 2 m, all options fitted, digital display, good working order, \$300 ONO. Ray VK2COX, QTHR, 02 6345 1911.
- **Parts collected for a big linear** I'll probably never build: 813s with sockets, filament transformer, HT transformer, numerous high voltage capacitors, phone for details, make me an offer: Roger VK2AIV, QTHR, 02 4234 1431.

- **Yesu FL-2100B** HF linear, good condn with spare set of valves, \$600, or swap for dual band mobile txcvr. David VK2DPD, 02 4397 2385, dougie@integritynet.com.au
- **Shack Clearance: Kenwood TS-930SAT** HF txcvr, s/n 3051044, MC-50 mic; SM-220 station monitor, oscilloscope, s/n 840257; Kenwood HS-5 headphones; **Drake TV 3300-LP** low pass filter; **Kenwood TR-9000** 2 m txcvr, s/n 1023189; **B99 System Base**, s/n 0050785; **Kenwood PS-20 PSU**, s/n 0050031; **Kenwood SP-100** speaker, s/n 0050785; **Scalar 2 m magnetic base ant**; **Dalwa DC 7011** rotator & control, s/n D09302; **TH3-Jnr** beam ant on pole; **LDM-815** Qnd Dip Oscillator; **Iambic** keyer; **TAPR TNC-2** packet TNC; **AEM 4610** Maestro monitor; **Kenwood dynamic hand mic**, 500 ohm, 6 pin, up-down button; **IDS 445 dot matrix printer**; **Tandy 1000 PC**, T 2000 temp control soldering iron. Bruce VK2BAV, QTHR, 02 9971 7797.
- **Icom IC-740** txcvr, in-built 240 V 20 A power supply, Shure 444 mic, \$650. 1 kW LP filter, \$50. **Drake 2000 WATU**, \$150. **Tower, 9 m free-standing**, dismantled, in sections, ready to erect, with Hy-Gain TH3 10/15/20 tri-band antenna, Belden lead-in cable and rotator, \$300. **Mini-tower**, 8.7 m, 440 Manuals and instructions. The lot, \$1000. Chas VK2NPX, 02 9521 2637.
- **Tee-Tec Paragon** HF txcvr, 100 W, general coverage receiver, \$1200 or offer. Adrian VK2ALF, 02 6452 5555 (BH), 02 6452 4338 (AH).
- **Estate late John Gray VK2BGB**, **Kenwood TS-430S** HF txcvr, s/n 3050570, tech manual, \$800. **Kenwood AT-200** ATU, s/n 841526, \$100. **Welz SWR meter**, \$100. **BWD heavy duty PSU**, s/n 52040, \$150. **Kenwood R-1000** communications receiver, s/n 102147, \$400. **Handic 9050 Scanner** UHF/VHF, s/n 001089,

\$300. **MFJ-1278** multi-mode data modem, s/n 30024525, \$250. **Yaesu FT-709** UHF handheld, s/n 040040, \$150. **Yaesu FT-4700RH** VHF/UHF mobile txcvr, front panel detaches for remote mounting, 50/40 W, s/n 1E450189, \$500. **Yaesu FT-8500** VHF/UHF txcvr, FS-10 controller separates as above, \$500. **Yaesu YD-844** desk mic, \$80. Tony VK2BOA, 019 921 491, aob@hunterlink.net.au

● **Kenwood TS-830S** txcvr, SM-220 station monitor with bandscope, AT-230 ATU, VFO-230 ext VFO, SP-180 spkr, TS-600 6 m txcvr, all mode, all with manuals, all in good condn, \$1500 for complete station. Phil VK2DNO, QTHR, 02 4995 6139.

● **Kenwood TS-830S** txcvr, s/n 1041713, matching AT-230 ATU, manuals, MC35S microphone, good working order, \$600. Len VK2CGQ (ex VK4CGQ), 50 Farrington Village, Nambucca Heads NSW 2448, 02 6568 8435.

● **Yaesu FT-209RH** 2 m handheld txcvr, 140-150 MHz, 5 W output, new battery, case, plus YH-2 headset/mic for VOX hands-free use, VCC, \$260 the lot. Peter VK2BPO, QTHR, 02 9713 1831

FOR SALE VIC

● **Heathkit HW8**, four band (80, 40, 20, 15 m), low power CW txcvr, kitset, complete as new, ready to assemble, all documentation including copies magazine reviews, lots of suggested hints and kinks, \$150. Reg VK3CCE, QTHR, 03 9509 1471.

● **Hills tower**, 100 ft, four sections with winch and guides, dismantled and ready to go, \$1000 ONO. M Rozbicki VK3DXI, 03 9870 2170.

● **Motorola R2200/R2400** communications service monitor, \$4500. **Motorola 10559B** test set with leads, \$500. **Motorola R1033A** test set, \$600. **Tektronics 2205** oscilloscope, \$800. **Tektronics CMC250** frequency counter, \$450. P. K Bennie VK3KR, phone 03 5144 5828 or fax 03 5144 5000 only.

● **VK3ATN log periodic beam antenna**, 8 el, 13-30 MHz, good condn, complete, mostly stainless steel hardware, packed ready to be shipped to you, \$450. Bob VK3AQK, 03 5744 1676.

● **Cushcraft 215WB** 2 m 13 element broadband Yagi, handbook, good condn, with all mounting hardware, \$125. **Mini tower**, triangular, free standing, 13'6" high, 3' base, approx 9" at top, ideal for satellite antenna mount, easily transportable, \$75. **Cushcraft 6 element 470 cm Yagi**, good condn, no handbook, \$40. **Two incomplete homebrew Yagis**, 10 el on 2 m, 15 elements on 470, both on long 25 mm square beams, a minimum amount of work would see these going, \$40 the two. Harold VK3AFQ, 03 9596 2414, e-mail hepb@alpdlink.com.au.

● **TH3JR** with KR400 rotator, \$350. **TS-520S** txcvr, good goer, \$300. **FT-101**, needs second mixer box, or wreck, \$150. **Vintage Hallicrafters**

5X88 Skyraider, complete with handbook, needs work, \$250. **FT-221**, front end Rx problem, Tx OK, digital readout, \$150. Max VK3VI, 03 9354 5130.

● **Yaesu FT-757GX** HF txcvr, VGC, \$550 ONO. **DSE D-3800** PSU, 3-15 V, 25 A DC, EC, \$200. Graeme VK3GPT, 03 5962 6098.

● **Kenwood TS-130SE**, fantastic mobile or base rig, with manual and original box, \$650.00. **Homebrew Power Supply** to match, 20A, \$80.00. **Yaesu FT-212RH** 45 W mobile txcvr, ex condn, with manual, \$225.00. Sell the lot for \$850.00. Rob Higgins VK3JKA, 0418 372 958.

● **Kenwood TS-520S**, mic, manual, \$450. **Kenwood TR-7600** 2 m txcvr, \$175. **Kyoritsu SWR meter**, \$75. Ron VK3AEO, QTHR, 03 9707 3405.

● **Two inch diameter aluminum tubing**, \$3.00 per metre. Les VK3CX, 03 5422 2860.

● **Yaesu FT-101E** HF txcvr, CW filter, 30 m band, \$250. 144 MHz 30 W linear amplifier, \$70. Ken VK3DQW, QTHR, 03 5251 2557.

FOR SALE QLD

● **Icom IC-751** HF txcvr, plus Shure desktop mic, \$1100. **Icom PS-15** PSU, \$200. SP3 speaker, \$100. **AT-500** auto ATU, \$300. **Icom IC-25E** 25 W 2 m mobile FM txcvr, bracket, desktop mic, \$225. **DSE PSU**, \$75. Don VK4AZA, 07 5441 5454 (10-12 am).

● **Radio Shack DX-394** communications receiver, near new, hardly used, good performer with many features, \$210. Ron VK4BL, QTHR, 0418 233 372, vk4bl@tpgi.com.au.

● **Kenwood TS-140S** with Kenwood PS-32 PSU, \$1100. **THP HC500 HF ATU**, \$185. **Heathkit HD15** phone patch, \$150. **Turner Super Sidekick** base mic, \$110. **Shure 404C** hand microphone, new in box, \$100. **Drake MS-4** spkr, \$125. **ATN 8 el log periodic** antenna with balun, \$750. John VK4SKY, QTHR, 0417 410 503.

● **Coaxial connectors "N" female**, suit LDF4-50, new, \$50. Ditto to suit LDF5-50, \$75. **Collins 500 kHz crystal** filter, new, \$100. Ditto mechanical filter, \$100. **Marconi TF2300** modulation monitor, 5.5 - 1000 MHz, \$250. 100 ohm 80 W resistors, true non-inductive with gold plated ends, \$25. 1000 pF 15 kV 15 kVVA (virtually indestructible) plate blocking/bypass capacitors, new, boxed, \$50. **MRF421 RF transistors**, matched pairs, \$15 pair. **Mercury dashpot** relay, VERY heavy duty, compact size, \$50. **Roller inductor**, heavy duty, silver plated, new, \$50. John VK4KK, QTHR.

● **Kenwood TS-430S**, s/n 6050959, good condn, \$700. Alan VK4IH, 07 4685 2391.

● **Hills telescopic tower**, three section, extends to 70 ft, reasonable offers considered. Peter VK4BE, QTHR, 07 5546 6164.

● **Ameritron AL-811HX** linear amplifier, s/n 18021, 160-10 m incl WARC, 4 x 811A tubes, 800 W output, purchased new July '98, mint condn, suit new buyer. \$1350 ONO. Peter VK4VW, 07 5495 8724.

FOR SALE SA

● **Kenwood TS-520S**, \$190. **Yaesu FT7** and **FP4**, \$290. Marine communications equipment: **STC R 800 A**, **Eddystone EC 1680**, **AWA CTM-2K**, **AWA CTH-PS4**, best offers. Harro VK5HK, QTHR, 08 8323 9622.

FOR SALE WA

● **Sigtec CTCSS encoders** (ex commercial), with

data sheet, \$15 each. **IDA Viking Series DTMF microphones**, with manual, \$35 each. Colin VK6YHC, 08 9399 2929 (AH), 014 885 348 (BH).

FOR SALE TAS

● **Kenwood TS-950SDX** HF txcvr, incl general coverage receiver, DSP built-in, one owner, hardly used, as new, boxes and manuals, what offers? **Kenwood DG5** digital readout, suit TS-520S, \$120. Alan VK7AN, 03 6327 1171, 0417 354 410.

● **Two HP 4952A protocol analysers** RS232C/V24 pods, one V35 pod, 3.5" floppy capture, manuals, disks and cables, \$100 each. **Philips dual ISDN terminal adapter** multi, 2x analogue, 2x FD BRI channels, \$100. Justin VK7ZTW, QTHR, 03 6223 1351 (AH), e-mail justin@hmjgc.fam.aust.com.

WANTED NSW

● **Rockwell (Collins) 8054** receiver and any spares, connectors and documentation. Brian VK2GCE, 02 9545 2650.

● **FM92/900 U-Band** for conversion to 70 cm, also remote head. Ken VK2KJ, 02 9413 1846, 0412 003 517 anytime.

● **Nally tower**, 13.7 m crankup/tilt over. **Triband Yagi** 10-15-20 m, 3 or 4 element, lightweight preferably (portable use), and **rotator** to suit. Allan VK2NNN, 0417 441 892, e-mail ameredith@ozemail.com.au.

● **Big old receivers**, working or not, commercial or military, even junker or modified sets, parts welcome, the bigger the better, clean out the shack and give me a call, will collect in the Sydney area. John L21068, 02 9533 6261.

● **Pearce-Simpson Super Tomcat Mk II circuit diagram** and other relevant information. A Ambery VK2BOG, QTHR.

WANTED VIC

● **XF30C CW filter** for Yaesu FT-101E or FT-101B. Reg VK3ARB, 03 5794 2738.

● **SSRI communications receiver workshop manual** or operation handbook with PCB layouts, will pay all costs. Barry VK3AK, 03 9363 5628.

WANTED QLD

● **Kenwood AT-130** antenna tuner. Barry VK4BJK, 07 5478 3087, e-mail BJK@bigpond.com.

● **Transceiver** to suit FL-7000 amplifier, eg FT-767CX, or FT-757GXII, or FT-747GX, or FT-1000MP. Bernie VK4BTF, 071 416 8114.

WANTED SA

● **Information on disabling AGC on Kenwood TS-430S** for AMTOR/FACTOR use. Rob VK5RG, 08 8379 1889.

● **Publication "Hints and Kinks for the Yaesu FT200"**, copy costs gladly reimbursed. Geoff Bridgland VK5NDZ, QTHR, 08 8296 7496.

MISCELLANEOUS

● **The WIA QSL Collection** (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose VIC 3765, tel 03 9728 5350.

● **If you got your licence before 1973** you are invited to join the **Radio Amateurs Old Timers Club**. A \$2.50 joining fee plus \$5.00 per year gets you two interesting Journals plus good fellowship.

Arthur Evans VK3VQ or Milton Crompton VK3MN can supply applications forms. Both are QTHR in any Call Book.

● **Join the Royal Signals Amateur Radio Society, Australian Chapter**, for details and application form see their Web Site at: www2.tpg.com.au/users/vk6pg/vk6sg/ or contact Ken VK6QJ QTHR, or Alan VK6PG QTHR.


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New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of September 1998:

L30929	MR D DEVENEY
L30977	MR A BRADBURY
L50733	MR G J CLIFFORD
L50734	AR EXPERIMENTERS GROUP
VK1XX	MR G C DUNSTAN
VK2AR	MR A BORYNSKI
VK3CTD	MR C T DAVIES
VK2FC	MR G MILLEN
VK2MQT	MR P J GARDNER
VK2TKZ	MR D J HARDWICKE
VK2TRJ	MR R J MITCHELL
VK3BKG	MR G W JONES
VK3BOQ	MR A HUBBARD
VK3CMS	MR C M SHAW
VK3DPW	MR P WHITAKER
VK3EXL	MR R REYVELLIER
VK3GV	MR G VALENTINE
VK3HHH	MR L MCKAY
VK3HPC	MR P CARDAMONE
VK3JDY	MR J D YOUNG
VK3JNH	DR S WARRILLOW
VK3SWD	MR W L DAY
VK3XLV	MR F ARMSTRONG
VK3XTA	MR G WHEATLEY
VK3ZPO	MR S J PILE
VK5DON	MR D R NAIRN
VK5HEO	MR K S PITWAY
VK5IF	MR I B FISK
VK7HKN	MR K J NORRIS
VK7KB	MR K D DAVIS

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WIA Division Directory

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers	News Broadcasts	1998 Fees
VK1 ACT Division GPO Box 600 Canberra ACT 2601	President Hugh Bleimings John Woolner Treasurer Les Dawey	VK1YYZ VK1ET VK1LD	3.570 MHz LSB, 146.950 MHz FM each Sunday evening commencing at 8.00 pm local time. The broadcast text is available on packet, on Internet ausradio/misc/newsgrp , and on the VK1 Home Page http://www.vk1.wia.ampr.org	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK2 NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124) Phone 02 9689 2417 Freecall 1800 817 644 Fax 02 9633 1525	President Michael Corbin Secretary Eric Fossey Treasurer Eric Van De Weyer (Office hours Mon-Fri 11.00-14.00)	VK2YC VK2EYF VK2KUR	From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.170, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1273.500 (*) morning only with relays to some of 18.120, 21.170, 581.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet news group ausradio/misc , and on packet radio.	(F) \$69.00 (G) (S) \$56.00 (X) \$41.00
VK3 Victorian Division 403 Victory Boulevard Ashburton VIC 3147 Phone 03 9885 9261 Fax 03 9885 9298	President Jim Linton Secretary Barry Willon Treasurer Rob Hailey (Office hours Tue & Thur 0830-1530) e-mail address: vk3wa@vint.com.au Web: http://www.tbsa.com.au/~w3wv/	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies, 3.615 LSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3RCU 438.225, and VK3RMO 438.075. Major news under call VK3WV on Victorian packet BBS and WIA VIC Web Site.	(F) \$75.00 (G) (S) \$61.00 (X) \$47.00
VK4 Queensland Division GPO Box 638 Brisbane QLD 4001 Phone 07 3221 9377	President Colin Gladstone Secretary Peter Harding Treasurer Alistair Eirick e-mail: secretary@wag.powerup.com.au Web: http://www.wiaq.powerup.com.au	VK4ACG VK4JPH VK4FTL	1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.220 MHz FM, 53.725 MHz FM, 147.000 MHz FM, 438.500 MHz (Brisbane only), and regional VHF/UHF repeaters at 0900 hrs EAST Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) \$74.00 (G) (S) \$60.00 (X) \$46.00
VK5 South Australian Division 25 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone 08 8352 3428 Fax 08 8284 0463	President Ian Hunt Assistant Secretary Graham Wiseman Treasurer Joe Burford Web: http://www.vk5wa.ampr.org/	VK5QX VK5EU VK5UJ	1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.085 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday, 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.	(F) \$75.00 (G) (S) \$61.00 (X) \$47.00
VK6 West Australian Division PO Box 10 West Perth WA 6872 Phone 08 9351 8873	Acting President Cliff Bastin Secretary Christine Bastin Treasurer Bruce Hedland-Thomson Web: http://www.faroc.com.au/~vk6wa/ e-mail: vk6wa@faroc.com.au	VK6LZ VK6ZLZ VK6OO	146.700 FM(R), 438.525 FM(R), 29.120 FM at 0930 and 1900 hrs Sundays from Perth, relayed (morning only) on 1.825, 3.560, 3.582 (Busselton), 7.075, 14.116 (North), 14.175 (East), 21.185, 50.150 (morning and evening) 146.900(R) Mt William (Bunbury), 147.00(R) Katanning, 147.200(R) Cataby, 147.250(R) Mt Saddleback (Boddington), and 147.350(R) Busselton; (evening only) 1.895, 3.564 MHz	(F) \$62.00 (G) (S) \$50.00 (X) \$34.00
VK7 Tasmanian Division 24 Target Street Scamander TAS 7250 Phone 03 6372 5305	President Ron Churcher Secretary Paul Godden Treasurer John Klop Web: http://www.wia.tasnet.net e-mail: vk7kpp@hamnet.hotnet.com.au	VK7RN VK7KPG VK7KCC	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.	(F) \$74.00 (G) (S) \$60.00 (X) \$46.00
VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz). Note: All times are local. All frequencies MHz.				
			Membership Grades Full (F) Pension (G) Newly (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.

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FT-847 EARTH STATION



Only one transceiver gives you all-mode operation on the HF, 6m, 2m, and 70cm bands with full satellite capability... the new Yaesu FT-847 "Earth Station"

Ready for action on SSB, CW, AM, FM and Digital modes, the FT-847's compact size makes it ideal for a variety of portable/mobile applications as well as for serious base station operation. You get a solid 100W output on the HF and 6m bands, 50W output on both 2m and 70cm, dual fan cooling and a rugged diecast chassis. Plus, the ultra-quiet HEMT receive pre-amp on 2m and 70cm contributes to the FT-847's industry best sensitivity figures. Advanced Digital Signal Processing (DSP) circuitry enhances received signal/noise ratio for easier copy of signals under marginal conditions through the use of 16 selectable noise reduction algorithms, while the Bandpass and Auto-notch filters aid the IF based Shift and Noise Blanker circuits in reducing interference on crowded bands.

The FT-847 is ready for satellite operation, with crossband full duplex operation, normal and inverted VFO tracking of the satellite uplink/downlink, as well as 12 special satellite memories with alpha-numeric tags. Also provided is a low-noise Direct Digital Synthesiser (DDS) that provides tuning steps as small as 0.1Hz, plus there's an adjustable DSP bandpass filter as narrow as 25Hz for exceptional weak-signal CW performance. You can also install optional Collins® mechanical filters in both the transmit and receive chain for enhanced SSB operation, as well as a 500Hz Collins® filter in the receiver side for CW. An RF-style speech processor with adjustable frequency shift voice tailoring is also provided to add punch to your SSB transmissions.

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Each transceiver is supplied with a hand-mic, DC power lead and a comprehensive instruction manual. Call us for a copy of Yaesu's 6 page colour brochure to learn more about this incredible value "Earth Station" transceiver.

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